

THE
BOTANIC PHYSICIAN,

BEING A

COMPENDIUM OF THE PRACTICE OF MEDICINE,

UPON

BOTANIC PRINCIPLES;

CONTAINING ALL THE PRINCIPAL BRANCHES NECESSARY TO THE

STUDY OF MEDICINE,

AS

CAUSES, SYMPTOMS, AND CURE OF DISEASES—MIDWIFERY—MATERIA
MEDICA, PHARMACY AND BOTANY—SURGERY—
PHYSIOLOGY, &c.

TOGETHER WITH A GREAT VARIETY OF

USEFUL RECIPES.

BY DR. ELISHA SMITH,
President of the New-York Association of Botanic Physicians.

REVISED, CORRECTED, AND IMPROVED

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EXPLANATION.

The additions and remarks of the Editor throughout this work will be found enclosed in [brackets].

ERRATA.

Sixth line from foot of page 281, read *ninctieth* instead of *nineteenth*.

Fourth line from the commencement of the last paragraph on page 432, for *continuing* read *contracting*.

COMPLIMENTAL RESOLUTIONS.

At a Meeting of the Medical Class of ISSAC S. SMITH, M. D., held at the Lecture Room on Tuesday, 15th February, 1844, E. H. Hosier was appointed Chairman, and G. Hopkins, Secretary.

A committee of three, consisting of G. W. Downing, L. Beach, and A. D. Atkinson, was appointed to draft a set of resolutions expressive of the sense of the meeting.

The committee reported the following for the approval of the class :

That whereas, during the past winter we have attended a course of ANATOMICAL, PHYSIOLOGICAL, and SURGICAL LECTURES, delivered by Doctor ISAAC S. SMITH, which, for the clear and conspicuous manner of illustrating his demonstrations, has been of essential benefit to the class.

And, whereas, the said course of Lectures has throughout been characterized by a display of talent, intellect, and erudition ; by the dictates of unerring reason and nature's self-evident truth on the part of the Lectures ; the class regards it not only as a privilege, but as a pleasing duty to manifest, in unqualified terms, their opinions of the merits and professional worth of their instructor.

Be it, therefore,

Resolved, That the united thanks of this class be tendered to Dr. I. S. SMITH, for the honorable and able manner in which he has endeavored to impart instruction to each and all of his hearers ; and also for the kindness he has shown in trying to impress on the minds of his class, the responsibility and importance of that profession of which he is a most worthy and efficient member.

Resolved, That we commend Dr. Smith as an able and instructive lecturer to all who wish to obtain a knowledge of Anatomy, Physiology, and Surgery.

E. H. HOSIER, Chairman.

G. H. HOPKINS, Secretary.

G. W. DOWNING,	}	Committee.
L. BEACH,		
A. D. ATKINSON,		

After the presentation of the above by the chairman, Mr. Hosier again, on behalf of the class, in a very eloquent address, presented a beautiful and costly case of Dissecting Instruments.

PREFACE TO THE REVISED EDITION.

This Work was formerly known under the name of "Smith's Botanic Physician," and evinced its superiority in the fact of its being the most popular work of the kind then extant and by its rapid sale. It was published by my much esteemed father, Dr. Elisha Smith, in the year 1830, and owing to his decease has been for some time out of print. The frequent inquiries and the demand for the work, have induced me to republish it, making such additions and improvements as were thought would most enhance its value and serve the interests of the public and of the profession. It was thought best to leave out the entire department of Anatomy, believing that it was too brief to be properly understood, and in its stead has been inserted a system of Physiology, so adapted as to make it of practical use to every reader.

The present Edition has been prepared with great care and deliberate reflection. The department of Physiology is entirely original (except where credit is given) and in general the result of my own personal observation, and not a compilation of the labors of others as is frequently the case in works of this kind, nor are its pages burthened with matter entirely foreign or irrelevant to the several subjects treated of, for the mere purpose of swelling the size of the book. Conciseness without abridgment of useful matter, has been one great object aimed at through the entire work. Many large and voluminous works are thrown from the press, that purport to be an enlarged and complete practice; how far the assertions made in the title page have been redeemed, I leave to the disappointed student, who has wasted his midnight oil on the ponderous tomes, to answer. Book-making is one thing, and practical knowledge is another, as is proved from the fact that many a huge octavo, if stripped of all its chaff as relates to the subject treated of, would be reduced to a primer. Others again, have

gone to the other extreme ; instead of their books being large, they are so condensed that the meaning of the author cannot be properly ascertained, and the great good that they wished to accomplish, fail for want of sufficient facts to support it.

There are other books made up chiefly of assertions, and these veiled in mystery. This class is the worst of all ; their only tendency being to establish quackery in its most hideous form. The whole practice of medicine, in all its various branches should be fairly and fully set forth in all books intended for information on this subject. In this way the standard of medicine would be elevated and the confidence of the people established, without which the success of a practical work will be limited and looked upon with a jealous eye by an enlightened community.

In this volume the Editor believes the reader will find sufficient to make him acquainted with all the essentials (in addition to a sound mind) necessary for a successful practitioner. Before and at the time of the first publication of this work, botanic practitioners were looked upon as a set of quacks, and laws were made and rigidly enforced against them ; but men of standing have, one after another, come into the system, and the practice has risen to a higher eminence. Scientific works have been written which have been and are looked upon as sound and practical. It is true that the whole profession cannot see alike in these matters, yet we should not find fault with each other for opinion's sake. For we all have the same object (the public good) in view, therefore, let us reason together that truth and justice may be established.

Numerous additions and improvements have been made to the Practice of Medicine with a view to increase its usefulness, and the editor hopes that those who are acquainted with the original work will find what he has added to this department productive of benefit.

The Department of Surgery has been dressed up in such manner as to bear but little of its original appearance. Midwifery has also been renovated and much enlarged with the editor's own experience.

What is written by the Editor of this work is done in all sincerity, and the reader may adopt what in his judgment appears reasonable and right. This, as well as all other works of the kind, must be judged by a higher tribunal than those who criticise only for the sake of finding fault.

With these remarks I shall leave the reader and the profession for the present, begging, however, to offer, in this place, to my class of the last winter, my sincere acknowledgements for the subjoined favor.

INTRODUCTORY PREFACE.

The author of the following work has long seen, and with regret, the want of something like a general systematic treatise upon the different branches appertaining to medicine, on a plan adapted to the peculiar profession of Botanic Physicians; and he has looked anxiously for some one more competent to the task, to undertake it. But as yet, no work of the nature of the one proposed, even professedly, has appeared, that I am aware of. Many books, indeed, have been written upon Botany; but they have chiefly been either a scientific classification of plants, unconnected with their medicinal properties, or mere fugitive treatises upon the medical qualities and uses of particular plants, which, though very useful as far as they go, were not intended by their authors as a general guide for the practice of physic. Impelled, then, by the necessity of a work, such as is proposed above, the author has attempted in the following pages to supply it; how far he has succeeded, others will determine. This, however, he can confidently assure the members of the Botanic Profession, that in his hands the treatment of diseases recommended has proved eminently successful, and it would be but a poor compliment to his Botanic Brethren to suppose that in their hands it would not be equally efficacious.

It will not be denied, that the depressed and almost outlawed condition under which Botanic Practitioners have labored in modern times, is in a great measure owing to the deficiency of a substantial, comprehensive, and regular system of practice which should render them independent of any other sect, elevate them to a standard of respectability, and remove all grounds for the imputations of ignorance and incompetency, which are now so lavishly heaped upon them by interested persons. Until such a standard is established, societies formed, and the Botanic Profession brought up to that standard, public confidence in them, as a body, cannot be expected.

And I would ask, what should hinder the accomplishment of so desirable an object? Are botanic medicines so intrinsically inefficient, or so deservedly unpopular, that they shall forever be condemned to insignificance? None dare say it. Who has not, in the course of his life, seen astonishing cures performed by the simple virtues of vegetables—even when administered by the humble man of “roots and herbs,” when the whole force of minerals has failed? Does any one

say that vegetable medicines are less safe than minerals? Alas! the miserable martyrs to the latter who daily meet our eyes, forbid it. Why, then, do we grovel in the dust, when the Almighty has put in our possession such ample materials for relieving the sufferings of our fellow-beings? And why are we permitted to render this service only with halters about our necks? Why is it that the Botanic Profession is proscribed in most of the States by legislative restrictions, which, in many of them amount to absolute tyranny, as unconstitutional, as unjust? If there is a shadow of a cause for such oppression, aside from the insidious misrepresentations of interested persons, it is because Botanic Physicians are not just to themselves. Let them unite—form societies—establish a respectable and intelligent standard of admission, and the favor of the public will soon break their fetters.

If this present work shall in any degree stimulate the members of the Botanic Profession to the attainment of the above objects, or contribute in the least to their permanent establishment—or even furnish an incitement to others more capable of doing justice to the undertaking, I shall be gratified. I have entered upon the undertaking with diffidence, well knowing the difficulties attending it. But as I have had considerable experience in the healing art, duty to society seemed to impel me to communicate it, in the hope that it might possibly be beneficial to the human family, when I can no longer be so; for I should always have esteemed myself a useless member of society had I not contributed my mite, however imperfect, towards the improvement of physic.

In giving the history of diseases, causes, symptoms, &c., I lay no claim to originality, a correct description of disease being the same everywhere. I have therefore taken them, principally, from different medical works, wherever I have found them agreeing with my ideas, making such alterations as I saw fit. I have also extracted such observations upon diseases as I imagined might be useful, whenever I have found them coinciding with my views. And for these I am chiefly indebted to the estimable Buchan, and Thomas, who, however we may vary in regard to remedies, were generally very correct and plain in their descriptions. In the department of *Materia Medica* I have likewise derived great benefit from the descriptions of Thatcher, Rafinesque, and Henry, whose works have contributed largely to the development of the medicinal resources of our country.

This book is written in plain language, in order that the student may come at once at the substance of the study, without being under the necessity of charging his mind with a host of Latin technical terms, which can only serve to confuse and confound him, or, at most, to screen his ignorance. The English language is certainly copious enough to express the whole science. I have, therefore, dispensed with every other, excepting such terms as are common, and it may be convenient to retain.

Above all, I would not be understood as encouraging any person in the practice of physic until he has attained a thorough knowledge of all the branches of it necessary to a correct and intelligent understanding of the subject. But book knowledge alone cannot do this. The-

ory, or study, merely, never formed a physician ready for the work. With equal propriety a man might learn any mechanical business by theory; he would find, in either case, on attempting the practical part, that he has his profession yet to learn. It is *observation* only, under the guidance of some experienced practitioner, that can perfect the physician and render him practically competent.

Neither would I have the qualifications of the student regulated by the *time* he has spent in study, for some, from instinct, or a natural inclination for it, will understand the subject better in one year than others will in their whole lifetime. Therefore, whenever a student can pass the examination of a competent tribunal, satisfactorily, let him be admitted, whether he has studied two or ten years—acquired his knowledge in the chimney-corner or in the college, thereby affording encouragement to industry and enterprise.

It has been a common custom among one class of physicians to denounce all others as “quacks,” &c. Indeed, I have been cursed for a quack, merely for curing when my accuser has failed. Such accusations, under such circumstances, are quite harmless and ridiculous. Walker’s definition of a quack is, “a boastful pretender to arts which he does not understand.” Such a person should be despised, learned or unlearned, wherever he may be found—and “by their *fruits* ye shall know them.”

It is an invariable maxim with me, in the treatment of all diseases, that *Nature is the chief physician*; hence, all that is required of our art, is to assist her when she languishes, and check her when her efforts are too violent; and to accomplish both these ends by the steps whereby she endeavors to expel the disorder, for nature alone terminates distempers and works a cure, with the assistance of a few simple medicines, and sometimes even without any medicines at all. Above all, never *force a cure*. It is certain to produce lasting injury, and ruin the constitution, whereas, by patiently following the course of nature the patient is left sound and well.

If any reason were wanting for my preference of vegetable medicines, I would answer, their *safety* and *congeniality*, in comparison with minerals. The effects of vegetable poisons upon the system are temporary—those of mineral poisons, lasting. Mineral poison, mercury in particular, exerts such an all-powerful influence upon the system as to supersede every thing else, stilling and silencing both the disease and nature herself together, and often substituting a greater and more grievous disease, which shall weigh upon man through life. Does any one say that there are certain indications in disease which can only be answered by mercury? He certainly exposes his ignorance. And if there are comparatively harmless substitutes, I would ask, are we justifiable in administering a medicine attended with so much risk of making the patient miserable through life? Rather, far, let it be said of me, that I will do no hurt if I can do no good, than thus wantonly to trifle with the welfare of my fellow-beings.

Bleeding may be useful in some cases; but the extent to which it is generally carried appears to me to be an extravagant waste of the fountain of life. There are very few disorders in which letting blood

removes the cause ; and where it is practised, recovery is usually much slower. I have therefore recommended it sparingly.

The reader will perceive, that in most of those diseases which may be termed diseases of the blood, or vitiation of the humors, I have recommended as a general remedy or purificator, a syrup of my own preparation, which I term my "*anti-mercurial syrup*," and which is entirely vegetable. This syrup, I freely acknowledge, is with me a particular favorite, as with it I have been enabled to relieve the sufferings of vast numbers of mankind, and in many cases where the patient had almost given up the use of all medicines in despair. Its benefits are more apparent in long standing chronic cases, as cancer, ulcers, scrofula, and venereal affections, in the last of which I think I may say with truth, that when properly administered, it is almost infallible.

ART OF HEALING.

KNOWLEDGE AND CURE OF DISEASES.

THE Knowledge and Cure of Diseases, do not depend so much upon scientific principles, as is professed in the prevailing dogmas of the present day. It is chiefly the result of observation of the operations of NATURE, and of experience. We would not be understood, however, as insinuating that a medical education is of no use; a correct knowledge of the human system, in all its parts and functions, and a thorough acquaintance with the symptoms of all diseases and disorders to which it is liable, are attainments indispensable to a good physician. But these can be acquired *correctly* only by blending the study with actual observation, as the student progresses. As well might a man learn the art of PRINTING, or any other mechanical business, by *theory* alone, and be as practically competent to the manual labor as the upstart of mere book knowledge is to the management of the sick. By attending the sick at the bed-side, and carefully observing the various occurrences in diseases, a great degree of accuracy may be acquired, both in distinguishing their symptoms, and in the application of medicine. This is the only way in which a sound medical knowledge can be obtained. All the books ever written upon medical subjects cannot supply the place of actual experience. Hence, sensible nurses and others who wait upon the sick, often foresee the patient's fate sooner than many who have been bred to physic; and frequently perform cures, where the man of theory has failed.

DEFINITION OF DISEASES, &c.—Every disease may be considered as an assemblage of symptoms, and must be distinguished by those which are most obvious and permanent. Instead, therefore, of giving a classical arrangement of diseases, according to the systematic method, it will be more suitable to our purpose to give a full and accurate description of each particular disease as it occurs; and where any of the symptoms of one disease have a near resemblance to those of another, to take notice of that circumstance, and at the same time point out the peculiar or characteristic symptoms by which they may be distinguished. By a due attention to these, the investigation of diseases will be found to be a far less difficult matter than most would at first be ready to imagine.

A proper attention to the patient's age, sex, or temper of mind, constitution, and manner of life, will likewise greatly assist, both in the investigation and treatment of diseases.

In childhood, the fibres are lax and soft, the nerves extremely irritable, [the circulation very rapid, and, consequently, inflammation much more easily excited;] whereas, in old age, the fibres are rigid, the nerves become

almost insensible, and many of the vessels imperviable. These and other peculiarities render the diseases of the young and aged very different, and, of course, they must require a different method of treatment.

Females are liable to many diseases which do not afflict the other sex; besides, the nervous system being more irritable in them than in men, their diseases require to be treated with more caution. They are less able to bear large evacuations, and all stimulating medicines ought to be administered to them with a sparing hand.

The temper and mind ought to be carefully attended to in diseases.—Fear, anxiety, and a fretful temper, both occasion and aggravate diseases. In vain do we apply medicines to the body to remove maladies which proceed from the mind. When that is affected, the best medicine is to soothe the passions, to divert the mind from anxious thought, and to keep the patient as easy and cheerful as possible.

Particular constitutions not only dispose persons to peculiar diseases, but render it necessary to treat these diseases in a peculiar manner.—A delicate person, for example, with weak nerves, who lives mostly within doors, must not be treated under any disease, precisely in the same manner as one who is hardy and robust, and who is much exposed to the open air.

Attention ought likewise to be paid to the climate, or where the patient lives, the air he breathes, his diet, &c.—Such as live in low marshy situations, are subject to many diseases which are unknown to the inhabitants of high countries. Those who breathe the impure air of cities have many maladies to which the more happy rustics are entire strangers. Persons who feed grossly, and indulge in strong liquors, are liable to diseases which do not affect the temperate and abstemious.

The different occupations and situations in life expose men to peculiar diseases.—It is, therefore, necessary to inquire into the patient's occupation, manner of life, &c. This will not only assist us in finding out the disease, but likewise will direct us in the treatment of it. It would be very imprudent to treat the laborious and sedentary in the same manner, even supposing them to labor under the same disease.

It will likewise be proper to inquire whether the disease be constitutional or accidental; whether it has been of long or short duration; whether it proceeds from any great and sudden alteration in the diet, manner of life, &c. The state of the patient's body, and of the other evacuations, ought always to be inquired into; and likewise, whether he can with ease perform all the vital and animal functions.

Lastly, it will be proper to inquire to what diseases the patient has formerly been liable—whether he has taken large quantities of mercury, quinine, &c., or suffered large evacuations of blood; if he has a strong aversion to any particular drug, &c.

As many of the indications of cure may be answered by diet alone, it is always the first thing to be attended to. Those who know no better, imagine that every thing which goes by the name of medicine, possesses some wonderful power or secret charm, and think if the patient swallows enough of drugs, that he must do well. This mistake has many ill consequences; it makes people trust to drugs, and neglect their own endeavors. Medicines are useful in their places, as mere handmaids of Nature; and when administered with prudence, may do much good; but when they are put in place of every thing else, or administered at random, they must do mischief.

Every disease weakens the digestive powers.—The diet ought, therefore, in all diseases, to be easy of digestion. In inflammatory cases, as fevers, pleurisy, &c., the food should be light, and the drink diluent and mucilaginous, the quantity to be regulated by the patient's inclination. This regulation of diet is of equal consequence with the administration of medicine. After an inflammatory fever has passed its crisis, and a craving appetite commences,

it may be indulged in more nourishing food, and in larger quantities, always bearing in mind, to take a little at a time and often.

In fevers of a slow, nervous kind, or agues, or in cases of extreme debility and wasting of the flesh, where there are no symptoms of inflammation, nourishing diet, and cordial, stimulating drinks are indispensable to a cure. Nor is a proper attention to diet of less importance in chronic than acute diseases. Persons afflicted with low spirits, weak nerves, thin watery fluids, and hypochondriacal affections, generally find more benefit from the use of solid food, chalybeate waters, and generous liquors, than from all the carminative or other medicines that can be administered to them.

In consumptions, when the humors are vitiated, and the stomach so much weakened as to be unable to digest the solid fibres of animals, or even to assimilate the juices of vegetables, a diet consisting chiefly of *milk*, especially that of a woman's breast, will not only support the patient, but will often cure the disease, when every other medicine has failed.

Nor is the attention to other things of less importance. The strange insatiation which induces some people to shut up the sick from all communication with the external air, has done great mischief. Not only in fevers, but in many other diseases, the patient will receive more benefit from having the fresh air prudently admitted into the chamber, than from all the medicines that can be given him.

Exercise may likewise be considered as a medicine, in many cases.—Sailing, or riding on horseback, for example, will be of more service in the cure of consumptions, glandular obstructions, &c., than any medicines yet known. In diseases which proceed from a relaxed state of the solids, the cold bath, and other parts of the gymnastic regimen, will be found equally beneficial.

Few things are of greater importance in the cure of diseases than cleanliness. [No patient should be allowed to lie in dirty clothes, or shut up in a close, unventilated room.] Many diseases may be cured by cleanliness alone; most of them may be mitigated by it, and in all of them it is highly necessary, both for the patient and those who attend him.

Many other general observations might be made, were it necessary; but I will conclude with the single remark, that a competent physician, who assumes the responsibility of the lives of men, should be possessed of a sound, discriminating judgment, firmness of nerve and purpose, independence, and above all, *patience*; to which should be added, an intimate acquaintance with the action of the human system, the situation of the parts, their functions, their morbid and healthy appearances—regulated and governed as the whole is by that principle in Nature, which is continually exerted to the preservation of the human frame, and without which, it could not exist an instant. The whole duty, therefore, of a physician is, to follow the indications of Nature, and aid her efforts to throw off disease, whether by perspiration, eruptions, expectoration, diarrhœa, or increased urinary discharge, or otherwise.

I cannot forbear one more remark: I have never yet been able to discover the necessity of connecting the study of the dead languages with that of physic. Is not the English language sufficiently comprehensive to explain every term connected with the science? Why, then, should a student throw away years of his life in the acquisition of a language quite useless, and charge his memory with a host of uncouth medical terms, to the exclusion, perhaps, of what is really valuable? It can only confuse and confound that which, rightly understood, is simple: or, what is more dangerous, serve as a cloak for ignorance, when the common language and common sense of the people, would detect and expose them.

GENERAL VIEW OF FEVERS.

A FEVER exists when the motion of the blood is preternaturally accelerated, which increased motion seems to be caused by an effort of nature to expel something out of the body, which ought not to be retained within it; but this effort becomes a primary disease, from the incapacity of nature to remove it.

By NATURE, is meant that active power by which those functions are performed, which are entirely independent of our own direction or consent; such, for instance, as the pulsation of the heart and arteries, the secretions, &c.

The immediate cause of fevers, is *irritation*, (which may occasion a spasmodic affection of the whole nervous system,) commonly owing to an obstruction of insensible perspiration; when the particles of this matter are thrown back into the circulation, they may stagnate in, and plug up the extremities of the fine hair arteries near the surface, or bring on spasmodic constrictions of them. An irritation may also be owing to other causes, as acrid food, or liquors, affections of the mind, hunger, the absorption of pus, any thing acrimonious coming in contact with the extremity of a nerve, intense study, great watchfulness, profuse venery, &c.

THE SYMPTOMS of an inflammatory fever, are, parching heat, intolerable thirst, high colored urine, without sediment; quickness, hardness, and fullness of pulse, pain in the head, back, and loins; a dry furred tongue, anxiety about the heart and chest, difficult respiration, drowsiness, and aversion to food.

Fevers generally begin with a previous sensation of chilliness, shivering, or intense cold; less or more, longer or shorter, external or internal, according to the variety of subjects, causes, or fevers themselves. When the fever comes on gradually, the patient generally complains of languor, or listlessness, soreness of the flesh or bones, and heaviness of the head. When it attacks suddenly, it always begins with uneasy sensation of excessive cold, accompanied with debility and loss of appetite.

THE PROGNOSTICS.—Every fever ends in *health, another disease, or death*.

In *health*, when the matter causing the disease, is subdued by the fever, loosened, rendered movable, and at length expelled by insensible perspiration, sweat, saliva, vomiting, urine, or diarrhœa; a crisis usually coming on within fourteen days, in any event.

In *another disease*, when the vessels are injured by too violent an agitation, or too much powerful medicine; the more fluid parts consumed, the rest too much thickened, and the critical matter deposited in vessels which are obstructed, dilated, or ruptured; hence arises fever-sores, pustules, red spots, erysipelas, boils, buboes, scirrhus tumors, abscesses, gangrenes, and mortifications.

In *death*, when the preternatural increase of the vital heat overcomes the elasticity of the muscular fibres, and stops the action of the heart; or, when the fluids are destroyed by the force of the solids. Hence arises inflammations, suppurations, gangrene in the vital parts, and ulcers in the first passages.

THE CURATIVE INDICATIONS.—These direct to the correction and expulsion of the acid, irritating matter, with unremitting attention to the *living principle*, that it may not be too much diminished; while all the excretories and passages of the body should be kept free and open, the motion of the blood restrained within due bounds, and the redundancy of heat expelled.

As to *regimen*, fresh air is absolutely necessary, which may be admitted by the door or windows, as often and as long as may be thought convenient; it not only removes his anxiety, but cools the blood, revives the spirits, and proves every way beneficial. Many patients are stifled to death for the want of fresh air. Vinegar should be thrown frequently on a red hot iron in the room; sliced onions may be placed about the room, in malignant fevers; nor would it be a trifling melioration of the air, to set pots near the bed with some of the aromatic plants growing in them, as mint, rue, rosemary, &c. Clean dry linen refreshes, and may be safely allowed every day, or every other day at farthest. Let him not be confined wholly to his bed, but sit up every day, as long as he can without fatigue. Few visitors should be allowed, as nothing spoils the air of a sick person's chamber, or hurts the patient more, than a number of people breathing in it. He should be supplied plentifully with diluting liquids, for it is impossible that he can drink too much; what the fluid is, is not very material, provided it be taken in immense quantities; even cold water, if required, may be drank with safety and advantage. The following diluents are very suitable: teas prepared from the spice bush bark, or hain, sage, mint, pennyroyal, catnip; cider-why, boiled butter-milk, barley-water, &c.

When nature verges towards a secretion, sweating, or at least a warmer regimen becomes necessary to help on the crisis; depuration is the work of nature; if she is languid, assist her with cardiacs, aromatics, and cordials. Then blisters and poultices are highly proper to quicken the circulation, dissolve the too viscid particles of blood, and forward the secretion.

When the fever is subdued, let the patient take that which affords the least employment for the milk vessels; whatever food is allowed should be given in small quantities, and oft repeated; spoon meats, broth, panada, bread pudding, and such like. It is a fortunate circumstance that persons, while a fever continues, seldom feel any inclination to eat; for the chyle, or milk, cannot then be properly elaborated. After the ravages of a fever, and to remove the distressing languor which arises from too profuse evacuations, nothing is so proper as strong broths, drank as frequently and plentifully as the stomach can bear. If a vehement craving is manifested for *something particular* to eat, and it be often repeated, let it be what it will, it ought not be refused; in the decline of fevers, there seems to be something in those untoward hankerings of nature similar to that deprivation of appetite in the green sickness, where the eager desire of chalk and tobacco pipes is by no means, as some suppose, the cause of the disorder, but the predominant acid in the stomach (the primary disorder) which naturally instigates them to feed on such things.

THE CURE.—Never bleed in a fever of any description, unless inflammation and congestion of blood upon the brain are threatened. It is against the plainest dictates of common sense. The Yankee house-wife, when she finds the brine of her pork-barrel becoming *rusty*, does not draw off one gallon, and pronounce the remaining nine pure and sweet! No—she would think such a proposition came from a fool. Her common sense, however, teaches her to place that brine over a fire, and by the action of a gentle heat, cause the impurities to separate and rise on the surface, when she readily scums them off, leaving the brine purified, and again fit for use. Just so with the animal blood: drawing off the tenth, eighth, or even the fourth part of a man's blood, I presume does not change the quality of what is left! It is only a foolish waste of the *capital* of life. With the blood, as with the brine, a gentle heat is required to separate the noxious impurities; and in the former, that heat is had in the fever.

If the cause of the fever is foul stomach, (which is frequently the case,) first let that be emptied with a vomit or purge, or both; indeed, these can rarely come amiss. After this, give the *fever powders*, hereafter mentioned, or

something similar, with warm teas. These fever powders operate so beautifully, that I cannot forbear recommending them strongly; they produce immediate ease, and relaxation of the whole system—opening the pores, and bringing a fine moisture on the surface—giving astonishing relief. Almost any fever may be soon extinguished by a proper use of these powders.

INTERMITTENT FEVERS, OR AGUES.

An Intermitting Fever, is one that returns after the patient is wholly free from it, for one, two, or more days, with fresh severity.

CAUSES.—A viscosity, coldness, and feebleness of the arterial blood, occasioning a quicker and stronger action of the heart; an obstruction, or unequal distribution of the vital heat; a predominant acid and cold phlegm in the first passages; universal debility. These may be produced by whatever relaxes the solids, diminishes the perspiration, or obstructs the circulation in the small vessels.

SYMPTOMS.—The paroxysm of an intermittent, consists of three successive stages, viz: a hot, a cold, and a sweating stage. The fit commences with a sluggishness, sensation of lassitude, cold shivering, quaking, paleness of the extremities, difficult respiration, anxiety about the heart, nausea, vomiting, pain in the back, loins, and limbs, the pulse quick and small, the urine thin and crude. Then follow heat, flushings, redness, strong pulse, intense thirst, violent pain in the head, and the urine red, as in continued fever; afterwards the patient falls into a profuse sweat; the symptoms remit; the urine grows thick, with a sediment like brick dust; sleep and feebleness succeed.

PROGNOSTICS.—Sometimes it changes its marks, and is converted into a dangerous continued fever; but this is peculiar to full habits. Sometimes it ends, if not treated properly, in dropsy, jaundice, consumption, or scirrhus tumors of the abdomen: though these disorders may with more propriety be imputed to *bleeding*, and the continual use of *quinine*, adulterated, as it frequently is with *arsenic*, than to be numbered among the natural consequences of ague. If properly managed, it may be subdued with great ease.

THE CURE.—1st. This consists, during the cold stage, in endeavoring to bring on the hot, by means of artificial warmth; putting the feet in warm water; giving warm diluent liquids, stimulating diaphoretics, cordials, &c.

2nd. During the hot stage, to promote a free perspiration by means of the *fever powders*, Indian turnip, diaphoretic teas, cordials, &c.

The first thing to be done in the cure of an intermitting fever, is to cleanse the stomach and bowels. This not only renders the application of other medicines more safe, but likewise more efficacious. In this disease the stomach is generally loaded with cold, tough, viscid phlegm, and frequently great quantities of bile are discharged by vomit; which plainly points out the necessity of such evacuations. Emetics are, therefore, to be administered, before the patient takes any other medicine, which may be administered just before the accession of the cold fit. The emetic weed, or seeds, I prefer, as it seems to break up the foundation of the disease very effectually; [tincture of lobelia and bloodroot, equal parts, or the powder of the seeds and leaves of lobelia and bloodroot with ipecacuanha, equal parts, make a very excellent emetic:] ipecac is also very good. After the vomit begins to operate, the patient ought to drink plentifully of weak camomile, or pennyroyal tea. These vomits may be repeated, if necessary, in two or three days. Emetics not only cleanse the stomach and bowels, relax constriction on the surface, increase perspiration and all the other secretions, which render them

of such importance, that they often cure intermitting fevers without the assistance of any other medicine.

Purging medicines are likewise useful, and often necessary in intermitting fevers. Emetics, however, are more suitable in the disease, and render purging less necessary, especially where there is much debility. But if the patient is afraid to take an emetic, he must use cathartics; and the mandrake is a very proper one, as are also blue flag and rhubarb.

After thus laying the foundation of cure, the patient, particularly if much debilitated, should take plentifully of warming and strengthening *tonics* and bitters, and preparations of oxide of iron, &c., such as the tonic tincture, and myrrh and iron pills; bitters, such as golden seal, gentian, columbo, calamus, orange peel, pleurisy root, angelica, the jelly, Peruvian bark, white wood bark, unicorn root, &c. I consider one great cause of the ague to be a watery state of the blood, rendering it too feeble to perform its round of circulation; and the above tonics, by warming it, and giving weight and strength to it, remove the cause, and at the same time the disease.

If the patient complains of acidity in his stomach, alkalies, as sal æratus, or soda, may be administered as required.

When agues are not properly cured, they often degenerate into obstinate chronic diseases, as the dropsy, jaundice, &c. For this reason all possible care should be taken to have them radically cured, before the constitution has been too much weakened; and this is not done by the common practice of "breaking," or "killing the fit," as it is called, with barks and quinine; for this is no removal of the cause; and only operates to thwart and check the efforts of nature, keeping her feeble and prostrate.

If the patient has clammy night sweats, they should be remedied, as they are very weakening: ten or fifteen drops of elixir vitriol, may be taken three or four times a day; or a decoction of the herb called five-finger leaf; which are very bracing to the relaxed solids. Friction, with a woollen cloth, over the whole body, helps greatly in all cases of night sweats.

REMITTENT FEVER.

This fever takes its name from a remission of the symptoms, which happens sooner or later, and generally before the eighth day. The remission is commonly preceded by a gentle sweat, after which the patient feels greatly relieved, but in a few hours the fever returns. These remissions return at very irregular periods; the nearer, however, that the fever approaches to a regular intermitting, the less is the danger. This species of fever may be considered as the next in grade of severity above the intermitting fever.

CAUSES.—Remitting fevers prevail in low, marshy countries, abounding with wood and stagnant water; but they prove most fatal in places where great heat and moisture are combined, as in some parts of the southern and western states.

SYMPTOMS.—The first symptoms of this fever are generally, yawning, stretching, pain, languor, and giddiness in the head, with alternate fits of heat and cold. Sometimes the patient is affected with a delirium on the very first attack. There is a pain and sometimes a swelling about the region of the stomach, the tongue is white, the skin and eyes frequently appear yellow, and the patient is often afflicted with bilious vomitings. The pulse is sometimes a little hard, but seldom full; and the blood, when let, rarely shows any signs of inflammation. Some patients are exceedingly costive, and others are afflicted with a very troublesome looseness.

It is impossible to describe all the symptoms of this disease, as they vary

according to the situation, the season of the year, and the constitution of the patient. Sometimes the bilious symptoms predominate, sometimes the nervous, and at other times the putrid. Nor is it uncommon to find a succession of each of these, or a complication of all of them in the same person.

DIET.—When there are symptoms of inflammation, the diet should be slender and the drink weak and diluting. But when nervous or putrid symptoms prevail, it will be necessary to support the patient with food and liquors of a more generous nature. We should be cautious, however, in the use of things of a heating quality, as this fever is frequently changed into a *continual*, by a hot regimen and improper medicines.

Whatever the symptoms are, the patient ought to be kept cool, quiet, and clean. His apartment large and well ventilated, by letting in air at the doors and windows; it ought likewise to be sprinkled with vinegar, juice of lemon and the like, and sliced onions may be placed about the room. His linen, bed clothes, &c., should be frequently changed, and all his excrements immediately removed. These things are of great importance and must not be neglected.

MEDICAL TREATMENT.—Here again the emetics, as recommended in the ague, are of eminent service in breaking up the foundation of the fever; and these may be repeated once or twice, at proper intervals, if the sickness or nausea continues. Purges may also be necessary. Then, after the fever begins to come on, the *fever powders* will give ease, and produce an agreeable relaxation of the whole nervous system, thereby opening the pores and creating moisture on the surface. For this purpose, these fever powders exceed every thing I ever beheld; and are invaluable in all kinds of fever. The bowels, in all kinds of fever, should be kept open and free.

Affusion in cold water, where it can be practised with propriety, produces the most agreeable effects, with a tendency to sleep, fuller and more uniform pulse, moist skin, and now and then a distinct remission. To allay vomiting, sal aeratus with rhubarb may be used; and warm fomentations of camomile and poppies, applied near the seat of the stomach.

The body ought to be kept open either by clysters or gentle laxatives, as weak infusions of senna, manna, roasted apples, tamarinds, &c.; but all strong or drastic purgatives are to be carefully avoided.

In this fever, as well as in that called the yellow fever, the mandrake may be regarded as an invaluable remedy where it is wished to carry off putrid feculent matter from the bowels, and there is, at the same time, any degree of nausea or vomiting present, for it will pretty generally take effect downwards, although it may have caused vomiting at first.

When the blood is thrown on the brain with too great force, so as to cause inflammation, pain, or delirium, my *anodyne wash*, freely applied to the head, is very cooling, and gives great relief. It is very effectual in allaying inflammation, and prevents the determination to the brain. Poultices of bruised onions, or garlicks, or other warm drawing applications to the soles of the feet and palms of the hand, give great relief to the head, equalize the circulation, and extract the fever. Potatoes, roasted, so as to be mashed, and applied as hot as can be borne to the feet and glands throughout the body, are of great benefit in severe cases.

The use of cordial medicines is not to be dispensed with; for if Nature is not kindly supported, she cannot free herself from such disorders; add to which, the languor arising from necessary evacuation is sometimes fatal for want of proper strengtheners, and nutritious restoratives.

A remittent fever is always attended with some hazard, particularly in warm climates; in which it usually goes through its course in five or six days; but in cold ones, its crisis is not usually effected until the twelfth or fourteenth. The shorter and more obscure the remissions, the greater the

danger, and each succeeding paroxysm is attended with more risk than the former one. On the contrary, the milder the attack, and the nearer the fever approaches to the intermittent form, the sooner will be the prospect of the patient's recovery.

When the fever abates, give tonics, and bitters, as in other cases of debility.

SIMPLE CONTINUED FEVERS.

The necessity of any fever acquiring this title, has always appeared doubtful to me. From the experience I have had in them, I conclude that they are "simple continued fevers," only from *sufferance*. However, as they have acquired a name among diseases, I will describe them.

Fever of this type continue for several days, with nearly the same degree of violence, having evident exacerbations and remissions daily. They are composed of a combination of inflammatory and typhoid or putrid symptoms; the former being apt to preponderate at the commencement, the latter towards the termination of the disease. It is contagious, and of frequent occurrence in this country.

REMOTE CAUSES.—Every thing having a tendency to enervate the body, as bodily fatigue, great indulgence in sensual pleasures, violent exertions, intemperance in drinking, and now and then from suppression of long accustomed evacuations; with all the causes enumerated under the general observations on fevers. The days on which it is supposed the termination of continued fevers usually happens, are the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth and twentieth.

SYMPTOMS.—An attack of this fever generally begins with languor, or a sense of debility, sluggishness, aversion to motion, yawning and stretching, the face at the same time becoming pale, and the skin over the whole body constricted; subsequently a sensation of cold in the back, passing thence over the whole frame; and these continuing to increase, tremors in the limbs, and cold shiverings succeed. With these, there is a loss of appetite, want of taste in the mouth, pains in the head, back, and loins, and a small and frequent respiration. The sense of cold after a little time becomes less violent, alternated with flushes; and at length going off altogether, it is succeeded by great heat, diffused over the whole body; the face appears flushed, the skin and tongue dry; universal restlessness prevails, with violent pain in the head, oppression at the chest, sickness at the stomach, with inclination to vomit. There is likewise great thirst and costiveness, and the pulse is full and frequent, producing from 90 to 120 pulsations a minute. When these symptoms run high, and there is considerable determination of blood to the brain, delirium will ensue. There is generally in all continued fevers an increase of symptoms towards evening.

UNFAVORABLE SYMPTOMS.—If the disease is likely to prove fatal, either in consequence of its long continuance, or the severity of the symptoms, there will be observed a starting of the tendons, the patient picking the bed clothes; involuntary discharges by urine and stool; coldness of the extremities, and hiccups; but where no such appearances occur, the fever will run its course, and ultimately cease.

FAVORABLE SYMPTOMS.—The pulse becoming soft, and approaching its natural state; the tongue losing its furred appearance; thirst abating; the skin covered with a gentle and equable moisture, and feeling soft to the touch; the secretory organs performing their several functions, and the urine depositing flaky crystals of a dirty red color and becoming turbid on being allowed to stand.

MEDICAL TREATMENT.—In fever, all bodily motion should be avoided, especially that which calls any of the muscular powers into motion; very frequently merely getting into bed, and keeping perfectly quiet, both in body and mind, will prevent a severe fever; the patient ought, therefore, to be confined to bed, and lay in the easiest posture. Emetics and purgatives, and the subsequent use of *fever powders*, &c., as recommended in inflammatory fevers, are equally applicable in continued fevers; and if properly administered in the commencement, will usually break up the fever entirely. The treatment, in short, will be nearly the same as in the inflammatory at the commencement; and if the fever should not end here, the utmost caution must be observed in the use of those means which have a manifest tendency to reduce the tone of the system, so that sufficient strength may be left to combat the succeeding stage, which is invariably one of great debility, and in which the treatment will be that proper for typhus or putrid fever.

DIET.—In this fever, particularly at the commencement, the cooling regimen will be strictly necessary, as well as in some others of continued fevers. That kind of aliment which gives the least stimulus will be the most proper; it should consist of the most light, nutritive, and easily digested substances, as panada, roasted apples, preparations of barley, oatmeal, &c. Animal broths increase the heat of the body, and consequently are improper, unless the patient be in a state of convalescence. The drink may be boiled buttermilk, barley water, and toast water, milk whey, lemonade, thin gruel, &c.

INFLAMMATORY OR ARDENT FEVER.

An *ardent fever* is attended with a preternatural and universal heat. A strong, frequent, and hard pulse, and the animal functions but little disturbed, although at an advanced stage of it, the brain is apt to become much affected. It most commonly attacks the young, or persons about the prime and vigor of life, especially such as live high, and abound in blood. It is most prevalent in spring and autumn.

CAUSES.—Sudden transitions from heat to cold; any thing that overheats the body, as sleeping in the sun, drinking strong liquors, eating spiceries, &c. It is also occasioned by whatever obstructs perspiration, as lying on the damp ground, severe colds, drinking cold liquor when the body is hot, intense thinking, night watching, repelled eruptions, suppressed evacuations, &c. These cause *irritation*; and if that which ought to be expelled from the body is retained within it, a consequential putrefaction ensues, from whence the putrid inflammatory and other putrid diseases.

SYMPTOMS.—A rigor or chilliness generally ushers in this fever, which is soon succeeded by great heat, frequent and full pulse, pain in the head, back, and loins, dry skin, redness of the eyes, florid countenance, &c.; to these succeed difficulty of breathing, sickness, with an inclination to vomit. The patient complains of great thirst, has no appetite for solid food, is restless, and his tongue furred with white in the centre.

UNFAVORABLE SYMPTOMS.—Delirium, excessive restlessness, great oppression of the breast, laborious respiration, starting of the tendons, hiccup, cold clammy sweats, and an involuntary discharge of urine, &c. These all forebode danger; but if the patient snatches, fumbles with his fingers, gathers up the bed clothes, seems to pick straws, drops involuntary tears; if purple or livid spots appear, if the side stomach region is inflated, the extremities cold, with catchings of the breath, insensibility, cold sweats, rat-

ting in the throat; any of these are dangerous symptoms, and most of them generally quick forerunners of death.

DIET.—From the symptoms of this disease it is evident that the blood and other humors require to be attenuated; that the perspiration, urine, saliva, and all the other secretions, are in too small quantity; all the fluids seeming to be consumed by the intense heat. The vessels are rigid, and the heat of the whole body too great; all these clearly point out the necessity of a regimen calculated to dilute the blood, correct the acrimony of the humors, allay the excessive heat, remove the spasmodic stricture of the vessels, and promote the secretions.

These important purposes may be greatly promoted, in addition to medicine, by drinking plentifully of diluting liquors, as *boiled or mulled butter-milk*, balm, mint, sage, or pennyroyal teas, water gruel, barley water, whey, apple tea, &c.: these may be sharpened with the juice of orange, currant jelly, and such like; orange whey is an excellent drink. It is made by boiling among milk and water a bitter orange sliced, till the curd separates. A lemon, or a few spoonsful of vinegar will have the same effect. Two or three spoonsful of white wine may be added while boiling.

The above liquids must all be drank a little warm, and taken more freely after the fever has made some progress, in order to assist in carrying off the disease by promoting the different excretions.

The patient's diet must be spare and light, as panada roasted apples, &c.

Fresh air may frequently, with some caution, be let into his chamber. The patient should not be loaded with bed clothes; it increases the heat of the body, fatigues the patient, and retards perspiration.

Sitting upright in bed, if the patient be able to bear it, will often have a good effect: it relieves the head. Sprinkling the chamber with vinegar, juice of lemon, sliced onions, aromatics, &c., greatly refreshes the patient, and should be often repeated, in warm weather especially.

The patient should be kept as quiet as possible. Company, noise, and every thing that disturbs the mind, is hurtful. Even too much light ought to be avoided. His attendants should be as few as possible, and they ought not to be too often changed. His inclinations ought rather to be soothed than contradicted.

MEDICAL TREATMENT.—Assist Nature in her efforts to expel the morbid matter, in the same method whereby she attempts to do it, whether by vomiting, sweat, or urine. First, give the emetics before mentioned, if the appearances justify it. If the fever rages high, and there is great constriction and oppression, nothing will subdue it and produce a general relaxation, equal to the *fever powders*, before mentioned. [Nitric in combination with Dover's powders, are very good.] If the blood flows with too great velocity on the brain, causing pain and delirium, bathe the head with some cooling liquid, as *anodyne wash*, which is of great use, and also, at the same time, apply draughts to the feet, hands, and glands, as of onions, garlicks, roasted potatoes, &c.; *spice bush bark* tea is excellent for a constant drink to moderate the fever. If the body be bound, a clyster of milk and water, with a little salt, and a spoonful of sweet oil or fresh butter in it, ought to be administered daily. If this should not have the desired effect, a tea-spoonful of magnesia may be frequently put in his drink; he may also eat tamarinds, roasted apples, and the like.

If the pain in the head, and delirium, are obstinate, and accompanied with oppressed breathing, blisters on the back of the neck, and fomentations, should be applied.

If nausea prevail at the commencement of the disease, the stomach may be relieved, by making the patient drink an infusion of camomile flowers;

but if these should not have the desired effect, a little alkaline solution may be given.

If about the tenth, eleventh, or twelfth day, the pulse becomes more soft, the tongue moister, and the urine begins to let fall a reddish sediment, there is reason to expect a favorable issue of the disease. But if, instead of these symptoms, the patient's spirits grow languid, his pulse sinks, and his breathing becomes difficult, with a stupor, trembling of the nerves, starting of the tendons, &c., there is reason to fear fatal consequences.

In this case, blistering plasters may be applied to the head, ankles, inside of the thighs; poultices of roasted potatoes, garlies, onions, mustard and vinegar may likewise be applied to the soles of the feet, and glands throughout the body; and what is more effectual in the worst extremity, than all the rest, the fresh killed flesh of any animal, applied while it is yet warm with natural heat, over the pit of the stomach, and to the glands in the groin, armpit, &c., and changed as often as it becomes fœtid. Fowls cut open and applied are generally the most convenient; or the skin stripped off from cats. These applications of flesh extract the fever and putrescence most astonishingly, and stink with corruption in a very short time.

A proper regimen is not only necessary during the fever, but likewise after the patient begins to recover. By neglecting this, many relapse, or fall into other diseases, and continue weakly for life. The functions of the system are weak after a fever, and the diet ought to be rather light for a time, taken often, if craved, and little at a time. Too much food, drink, exercise, company, &c., are carefully to be avoided. The mind ought likewise to be kept easy, and the patient should not attempt to pursue study, or any business that requires intense thinking.

When the patient's health is pretty well restored, he ought to take some gentle laxative, as senna, tamarinds, buttermilk, &c. Tonics and strengthening medicines may be given on recovery, as directed in intermittents.

SLOW OR NERVOUS FEVER.

Nervous fevers commonly attack persons of a weak, relaxed habit, who neglect exercise, eat little solid food, study hard, and indulge in spirituous liquors.

CAUSES.—Nervous fevers may be occasioned by whatever depresses the spirits, or impoverishes the blood; as grief, fear, anxiety, want of sleep, intense thought, living on poor watery diet; a deficiency and unequal distribution of vital heat; consequently a declension of the powers of Nature, viscosity of the fluids, a relaxed state of the arterial system. It is more common in damp, unwholesome air, low, dirty houses, crowded streets, &c., and persons whose constitutions have been broken by excessive venery, frequent salivations, or excessive evacuations, are most liable to this disease.

Keeping on wet clothes, lying on damp ground, excessive fatigue, and whatever obstructs perspiration, or causes a spasmodic stricture of the solids, may likewise occasion nervous fevers, and we may also add, frequent and great irregularities in diet. Too great abstinence, as well as excess, is hurtful. Nothing tends so much to preserve the body in a sound state, as a regular diet.

The most general cause of this fever, is contagion, communicated through the medium of an impure or heated atmosphere, by concentrated effluvia arising from the body of a person laboring under this specific disease. Some predisposition, however, is requisite, in order to enable contagion to generate this fever.

SYMPTOMS.—The slow, or nervous fever, generally sets in with remarkable mildness in its symptoms; and although the patient experiences some trifling indisposition for several days, still he has no reason to suspect the approach of any severe disease. Then follow, dejection of spirits, want of appetite, deep sighing, chills and flushings, weariness, nausea, prostration of strength and spirits, listlessness, heat in the palms of the hands and soles of the feet, (a certain sign of slow digestion,) while all the rest of the body is cold, and emaciates fast; a sensation like cold water thrown down the back; the pulse quick, weak, and unequal; pale urine; stupor; heat and dryness of the tongue, sometimes with, and sometimes without, thirst; miliary eruptions; cold, clammy, or greasy sweats; convulsions; delirium, and twitching of the muscles.

PROGNOSTICS.—All the symptoms are increased towards night. A tingling noise in the ears is generally the forerunner of a delirium. A copious spitting, or gentle breathing sweats, are good signs; profuse sweats are bad ones. Insensibility, twitching of the tendons, excessive looseness, frequent fainting fits, involuntary evacuations of the excrements, urine, or tears, are preludes to death. But if, towards the ninth, tenth, or twelfth day, the tongue becomes more moist, with plentiful spitting, gentle purging, or moisture upon the skin; or if a suppuration happen, in one or both ears, or large pustules break out about the lips and nose, there is reason to hope for a favorable crisis.

DIET.—It is very necessary, in this disease, to keep the patient cool and quiet. The least motion would fatigue, and occasion weariness and even faintings. His mind ought to be kept easy, and soothed with the hope of recovery—forbidding all frightful and gloomy ideas. The patient must not be kept too low; his strength and spirits ought to be supported by nourishing diet, and generous cordials. For this purpose wine may be mixed with whatever food he takes. In fact genuine wine, in this disease, is almost the only medicine necessary. Patients in the lowest extremity, have recovered, by using a bottle or two of strong wine every day, in whey, gruel or negus. Good old sound claret is the best.

In a word, the great aim in this disease is to support the patient's strength, by giving him frequently small quantities of the above, or other drink of a warm and cordial nature. He is not, however, to be overheated, either with liquor or clothes; and his food ought to be light, and given in small quantities.

THE CURE.—All evacuations are inadmissible, vomits only excepted; sometimes very lenient clysters, such as new milk and sugar, may be safely administered, if Nature inclines to a stool. The medicines necessary, are attenuants, such as open the secretions, and thin the blood, (the *fever powders* in small doses occasionally,) restoratives, nervines, and cordials.

Cold affusion is one of the most powerful and efficacious means that can be resorted to in low typhus fevers; but its effects are more salutary in proportion as it is adopted early, or during the first stage of the disease. The affusion may be repeated four or five times in the course of twenty-four hours, using spring water impregnated with common salt, when sea water is not at hand; at the same time the patient's feet may be placed in a warm bath. This operation being over, the feet dried, and the patient put to bed, some herb teas may be given him, to promote perspiration. Blistering is also highly necessary if there is much pain in the head or signs of inflammation; plasters may be applied at all times of the fever, with great advantage. If the patient be delirious, in addition to the *anodyne wash*, he ought to be blistered on the neck or head, and it will be the safest course, when the insensibility continues, as soon as the discharge occasioned by one blis-

tering plaster abates, to apply another to some other part of the body, and thus keep up a continual succession of them till he is out of danger. Blistering plasters not only stimulate the solids to action, but likewise occasion a continual discharge, which may in some measure supply the want of critical evacuations, which seldom happen in this kind of fever.

A miliary eruption sometimes breaks out about the ninth or tenth day. As eruptions are often critical, great care should be taken not to retard nature's operation in this particular. The eruption ought not to be checked by any evacuation, nor pushed out by a hot regimen; but the patient should be supported by gentle cordials, as before mentioned.

This fever is in part a disease of the nerves, or a laxity of the nervous influence. Therefore, in desperate cases, nervines and anti-spasmodics are very useful. When hiccup and starting of the tendons have already come on, extraordinary effects may sometimes be produced from large doses of musk, camphor, valerian, lady-slipper, saffron, castor, hartshorn, &c., frequently repeated. If the fever should happen to intermit, and the patient's strength is much exhausted with clammy sweats, tonics, and the elixir vitriol may be used. If the sweats are profuse, let warm napkins be frequently applied to the neck, breast and abdomen: for though gentle sweats are of service, when they become profuse they only tend to the dissolution of the patient in a double sense.

There is no fever that requires to be watched more attentively than this. If the actions of the system are not kept up by stimulating applications, and the patient's strength supported by cordial medicines and nourishing diet, he will sink under the disease; and it frequently happens that when the attendants think him better, he is actually dying.

Mulled or boiled buttermilk, either by itself, or with wine in it, is a most excellent medicine in all fevers, and particularly in typhus and epidemics; and it is one too that is easily obtained. In the epidemic that raged through the country in 1813-14, almost all who were attacked in the section of the country in which I lived, died, until the use of this invaluable remedy was adopted, when after that, almost all that used it, were carried through safely. When a man found himself attacked, he immediately placed himself quietly in bed, and drank large quantities of this boiled buttermilk, warm, till a profuse perspiration was brought on; and when that was over, he would get up, in a measure well.

And it is a singular coincidence, and one that gives me pleasure to record, that during the same raging epidemic, in another section of the country, the inestimable FEVER POWDERS, which I have so highly recommended throughout this work, proved an *absolute specific* against its deadly ravages; for it is within my own personal knowledge, that a botanic physician in the State of Massachusetts, who knew the virtues of this blessed root, and used it, out of one hundred and forty-nine patients in that fever, only lost one, and she was aged and at the same time afflicted with a complication of other diseases. And while this medicine thus proved a certain savour to all who took it, nearly all others who were *really* attacked, and went through the common course of bleeding, &c., perished.

I wish to inspire not only patients in this fever, but their physicians also, with unceasing and unabated hope to the very last extremity. The changes for the better are often as sudden and unforeseen, as those for the worse. The last gasp alone should induce us to give up the patient.

PUTRID, MALIGNANT, YELLOW, AND SPOTTED FEVERS.

These may be classed together, because they are each produced by similar causes, and require very little, if any, difference of treatment. To this class also belong the *Jail and Hospital Fevers*. These fevers are of a malignant character, and putrefaction takes place towards their close.

CAUSES.—This fever is occasioned by foul air, putrid animal and vegetable effluvia, or infectious particles. Confined air, crowded with people, and not properly ventilated, is a frequent cause. A close constitution of the air, with long rainy and foggy weather, impedes perspiration, and, therefore, occasions putrid fevers. Damaged grain, dry hides, dead carcasses, tainting the air, especially in hot seasons, are very apt to occasion putrid diseases. They may also be produced by the continuity of burying grounds, slaughter houses, &c. The obstruction of insensible perspiration, is no uncommon cause of this class of fevers; for the retention of those particles within the body, which ought to have been thrown out of it, may, and often does, occasion a speedy putrefaction, especially when there is the least predisposition to such a dissolution.

We shall only add, that putrid and malignant fevers are highly infectious, and are, therefore, to be communicated by contagion. For which reason all persons ought to keep at a distance from those affected with such diseases, unless their attendance is absolutely necessary.

SYMPTOMS.—The malignant fever is generally preceded by languor, a remarkable weakness, or loss of strength, without any apparent cause. This is sometimes so great that the patient can scarcely walk, or even sit upright, without being in danger of fainting away. His mind, too, is greatly dejected; he sighs, and is full of dreadful apprehensions. There is a nausea, and sometimes a vomiting of bile; pain in the temples and orbit of the eye; the eye heavy, yellowish, or inflamed; the face bloated, and of a cadaverous aspect; faintness, difficult respiration, frequent sighing, wandering pains, the pulse small, sometimes quick, and sometimes the same as that of a person in perfect health; black tongue, bitter taste in the mouth, crude vapid urine; livid eruptions, black and blue spots, furred lips and teeth, little thirst, sores in the mouth, tingling in the ears, pains in the loins and small of the back, violent diarrhœas.

If blood be let, (which Heaven forbid,) it appears dissolved, and soon becomes putrid; the stools smell extremely fœtid, and are sometimes of a greenish, black, or reddish cast, sometimes there are violent discharges of blood from the mouth, eyes, nose, &c.

Simple putrid fevers may be distinguished from the inflammatory, by the smallness of the pulse, dejection of the mind, purple spots, dissolved state of the blood, and putrid smell of the excrements. They may likewise be distinguished from nervous, by all the symptoms being more violent.

It sometimes happens that the inflammatory, nervous, and putrid symptoms are blended together. The inflammatory are more prevalent in the yellow fever. In judging, therefore, to which class the fever belongs, some caution is requisite, as inflammatory and nervous fevers may be converted into putrid and malignant, by too hot a regimen, or improper medicines. The duration of these fevers depends mostly on the manner of treating them.

PROGNOSTICS.—The most favourable symptoms are, a gentle looseness after the third, fourth, or fifth day, with a warm mild sweat; a smarting red rash, scabs in the nose or lips, watery vesicles; the pulse rising upon the use of wine; deafness coming on towards the decline of the fever, and abscesses in the groin, or under the ears, are all good symptoms. Black urine,

or stools, excessive looseness; a hard swelled abdomen; small, dusky, dun, or greenish spots; a ghastly countenance; efflorescence, large livid blotches, black spots, profuse sweats, cold, or clammy; griping or bloody stools, drowsiness, and coldness of the extremities, starting of the tendons, involuntary stools, &c., are generally forerunners of dissolution.

DIET.—In the treatment of this disease, we ought to endeavor, if possible, to counteract the putrid tendency of the humors; to support the patient's strength and spirits; and to assist nature in expelling the cause of the disease, by gently promoting perspiration and the other evacuations.

Care should be taken to prevent the air from stagnating in the patient's chamber, to keep it cool and pure, and renew it frequently by opening the doors or windows of some adjacent apartment. The breath and perspiration of a person in perfect health, soon renders the air of a small apartment noxious; how much sooner, then, will this happen from the breath and perspiration of a person whose whole mass of humors is in a putrid state.

Besides the frequent admission of fresh air, vinegar, lime or lemon juice, or any kind of vegetable acid that can be most easily obtained, should be frequently sprinkled upon the floor, bed, and every part of the room; they may also be evaporated by pouring them on hot iron in the room. Fresh lemon or orange peel, sliced onions, strong scented fresh herbs, as rue, tansy, sage, mints, &c., should be freely distributed about the room, and are very refreshing to the patient. The fumes or scent of tobacco in the room is very disinfecting, when it can be borne.

Few things are of greater importance in this disease than acids, which ought to be mixed in all the patient's food and drink. Therefore, the *boiled butter-milk* is again here extremely applicable, and often little more is required to effect a cure. Orange, lemon, or vinegar whey, may be drank according to the patient's inclination. They may be rendered cordial by the addition of wine, in such quantity as the patient's strength seems to require. When he is very low he may drink negus, with only one half water, and sharpened with the juice of bitter lemon, or orange; or a glass of wine now and then.

When the body is bound, a clyster may be administered, or he may drink a decoction of tamarinds, which will both quench his thirst, and promote a discharge by stool. If camomile tea will sit upon the stomach, it is a proper drink in this disease.

The food must be light, as panada, gruel, to which a little wine may be added, if the patient be weak and low; and they ought to be sharpened with juice of lemon, or some other acid, as current jelly, or the like. The patient ought likewise to eat freely of ripe fruits, as roasted apples, &c. Taking a little food or drink, frequently, not only supports the spirits, but counteracts the putrid tendency of the humors.

If he be delirious, his feet and hands ought to be frequently fomented with a strong infusion of camomile flowers. Fomentations of this kind, not only relieve the head, by relaxing the vessels in the extremities, but as their contents are absorbed, and taken into the system, they must assist in preventing the putrescency of the humors.

MEDICAL TREATMENT.—If an emetic be given at the commencement of the fever, it will not fail to have a good effect. If the disease is far advanced, vomits are not quite so safe. The body, however, is always to be kept gently open by clysters, or mild laxative medicines, as small doses of rhubarb, senna, &c.

If the spots should suddenly disappear, the patient's pulse sink remarkably, and a delirium, with other bad symptoms, come on, we would recommend warm cataplasms, or poultices of mustard and vinegar, to be applied to the feet and hands. Saffron cordials may also be given internally.

In the most dangerous species of this disease, when it is attended with purple, livid, or black spots, acids, particularly the boiled buttermilk, or whey, prove very successful, even in cases where the spots had the most threatening aspect. But to answer this purpose, they must be taken in large doses, and well persisted in.

In any stage of this disease, the *fever powders* must not be omitted; if necessary, let them be given in such quantity as will keep the pores gently open and throw off putrefaction.

But if the malignity of the disease become formidable, and nature inclines to a dissolution; or even before these threatening symptoms appear; we may resort with confidence to the use of *fresh killed flesh*, applied warm with natural heat, first upon the pit of the stomach, particularly if the stomach be distressed or obstructed, and then upon the glands in the groins, arm pit, neck, the soles of the feet, or over half the surface of the body, according to the urgency of the case. These extract the putridity and poison, and give almost immediate relief; stinking with corruption in a very short time, perhaps in fifteen or twenty minutes, when they should be removed and fresh pieces applied; continually changing in this manner till the wished-for relief is obtained. For this purpose, fowls are the most readily obtained, and they should be cut in two, lengthwise, and instantly applied. It matters not, however, of what animal the flesh is, and that may be used which can be best spared. Fresh meat quickly absorbs putrefaction. The following anecdote exemplifies this fact:

The garrison of Gibraltar, when they fear the plague, (which that place is very subject to,) elevate a piece of fresh meat in the air at night; and if they find it sweet and untainted in the morning, they conclude there is not much danger; but if it has become putrid, they expect the plague.

Onions, garlicks, bruised potatoes freshly dug out of the earth and roasted without washing, till they can be mashed, and applied as poultices to the soles of the feet, or any part of the body, are also very efficacious in extracting the morbid matter, and relieving the system. Even fresh earth, alone, warmed and applied over the body, is considered almost a certain cure for the yellow fever, in the Spanish West Indies. There, when a person is attacked with it, they dig a hole in the earth large enough to receive his whole body, and after warming it a little, place the patient in it, completely burying all except his face, and there let him remain till the fever and taint are extracted, and relief obtained.

If there be a violent looseness, nothing can be more beneficial than plenty of acids, made somewhat cordial, and such things as promote a gentle perspiration, thereby turning the humors outwardly.

If the patient be troubled with vomiting, or nausea, after the proper evacuations have been made from the stomach, a drachm of pearlash, or sal æratus, dissolved in an ounce and a half of fresh lemon juice, and made into a draught, with an ounce of simple cinnamon-water, and a bit of sugar, may be given and repeated as often as it is necessary.

If swellings of the glands appear, their suppuration is to be promoted by the application of ripening poultices; and as soon as there is any appearance of matter in them, they ought to be laid open and the poultices continued. Large ulcerous sores sometimes break out in various parts of the body, in the decline of the fever, of a livid, gangrenous appearance, and a most putrid smell. These gradually heal, upon the application of cleansing poultices, as charcoal and yeast, and the use of acids, tonics, and cordials, internally. In typhus, yeast may be given internally, which calms and relieves the stomach greatly.

Cleanliness, in the strictest sense of the word, is to be most carefully attended to; therefore, the bed and body linen should be frequently changed, and the excrements instantly removed. The patient should be covered light-

ly with bed clothes, his apartment kept cool and properly ventilated, and acids and aromatics frequently sprinkled about.

When a putrid fever seizes any person in a family, the greatest attention is necessary to prevent the disease from spreading. The sick ought to be placed in a large apartment, as remote from the rest of the family as possible, and those in health ought to avoid all unnecessary communication with him. Any one who is apprehensive of having caught the infection, ought immediately to take an emetic, and work it off with camomile tea, drank plentifully.

Those who wait upon the sick in putrid fever, as well as physicians, ought always to have a piece of sponge or a handkerchief dipped in vinegar, or lemon juice, to smell of, while near the patient. The preparation known by the name of the "*Thieves' Vinegar*," has the reputation in some parts of Europe of being a complete guard against infection, let the exposure be ever so great. This composition was used by four thieves, who, during a great plague at Marseilles, entered the infected and deserted houses, and plundered, unharmed. They were afterwards taken and convicted; when they were promised a pardon on condition that they would reveal the secret of their protection; the composition was as follows:

"Infuse in a gallon of the best wine vinegar, one handful each of rue, rosemary, lavender, and sage, and two heads of Spanish garlic, peeled and cut in two. After twenty-four hours infusion, if any one has occasion to expose himself, he may do it without danger, by drinking a table spoonful of the liquid, and rubbing it on his hands and a little on his breast."

This vinegar, thus prepared, will keep any length of time, well stopped up in bottles, and ought to be kept in every family as it is in many parts of Europe. Many lives might be saved by using it in the first stages of the infection.

In this, as well as the preceding disease, the application of cold to the head, is advantageous in those cases where there is drowsiness or delirium, or where there is great pain in the head, with much anxiety. For this purpose, nothing, in my opinion, can be better than the cooling *anodyne wash*.

When the fever rages high, and there is great heat and constriction upon the surface, the whole skin may be bathed and rubbed with a solution of potash, or lye, not omitting the *fever powders*.

BILIOUS FEVER.

When a continued, remitting, or unremitting fever is accompanied with a frequent or copious evacuation of bile, either by vomit or stool, the fever is denominated bilious. This fever generally makes its appearance about the end of summer. It is most frequent and fatal in warm countries, especially where the soil is marshy, and where great rains are succeeded by sultry heats.

[The general symptoms are, sallow countenance, pain in the back and head; sometimes a slight cough, accompanied with uneasy sensations and restlessness; the eyes yellow, pulse hard and full, and moderate thirst. As the disease progresses, the tongue is covered with a dark brownish crust, the teeth sordid, and the whole mouth dry and parched. The patient has but little taste; his countenance has an anxious expression; he is suspicious of all that is said in his hearing, and is constantly on the watch; his mind at times wanders; he frequently picks at the clothes, speaks incoherently, sometimes laughs, and I have known him to crack a joke. but this is all done with that sardonic countenance which can leave no doubt as to its true character.]

In the cure of this fever, the two principal objects to be effected, are, the thorough evacuation of the bile collected in the stomach, and free perspiration. These done, in most cases, all is done. Give an emetic that will operate freely, this not only throws out the bile, but at the same time, by its stimulating action upon the fibres of the stomach, produces, by sympathy, an action upon the surface of the body, relaxing the constriction, and producing perspiration. If this should not be sufficient, however, the fever powders, in warm herb teas, may be taken as necessary.

An active purge of the anti-bilious pill, or mandrake root should be given after the emetic, to cleanse the parts below the stomach: and afterwards the body should be kept open, repeating the emetic if the bile again collects. To prevent nausea and acidity of the stomach, the sal æratus and rhubarb powders, or soda, should be taken occasionally.

After these evacuations, and the fever is broken up, by the removal of the cause, tonics and bitters should be given and continued till the patient is entirely well, to prevent a relapse. Columbo, golden seal, unicorn root, gentian, and the tonic tincture, are very proper.

In cases of violent looseness, the patient must be supported with chicken broths, jellies of hartshorn, and the like. If a bloody flux sets in, it must be treated as the dysentery.

[When the fever is controlled, and the inflammatory symptoms have subsided, there is still frequently great danger, as the patient will sometimes sink very rapidly from excessive debility, demanding renewed exertions on the part of the physician and attendants. I have often been obliged to resort to the use of brandy to keep my patient alive.]

SCARLET FEVER.

The Scarlet Fever, is so called on account of the color of the skin, or the large, red, vivid blotches in it. It happens at all seasons of the year, but is most common in autumn and the beginning of winter; at which time it often seizes whole families. Children and young persons are most subject to it.

It begins like other fevers, with coldness and shivering, without any violent sickness. Afterwards the skin is covered with red spots, which are broader, more florid, and less uniform than the measles. They continue for two or three days, and then disappear; after which the scarf skin falls off.

[Scarlet Fever occurs under two distinct forms, or type, viz: Simple and Malignant; the former being very mild in its symptoms, while the latter is severe and fatal in its tendency. I shall confine my remarks to the Malignant form of the disease. It is universally conceded that both forms of this fever originate from one and the same cause, to-wit, a specific contagion, their difference consisting in the degree of their severity; and I am of opinion that the Malignant form occurs only in persons who have a strong predisposition to the disease. The occurrence of this disease, like that of small pox, destroys the susceptibility of the patient's system to a second attack.]

I have never seen a case of the Malignant form of this fever occur in any persons except those who have a predisposition to scrofula; and I am further of the opinion, that persons who have suffered from an attack of small pox, are less liable to the influence of Malignant Scarlet Fever; or that the occurrence of small pox destroys, in a great degree, the susceptibility of the system to the action of Scarlet Fever. The fact that the Malignant type of this disease occurs only in persons who have a scrofulous condition of the system indicates the general treatment.

PREDISPOSING CAUSES.—These are, poor and unwholesome diet, a scrofulous habit of body, living in filthy and damp places, uncleanness of person, an unhealthy condition of the solids and fluids of the body, arising from scrofulous taint or any other hereditary affection; putrid animal and vegetable effluvia, &c.

EXCITING CAUSE.—This is a specific virus which is evolved from the body of a person who is laboring under an attack of the disease. This virus is very contagious in character, and sometimes becomes epidemic, rapidly extending its fatal ravages through every family of children in the neighborhood of its existence.

SYMPTOMS.—This fever makes its accession in alternate fits of hot and cold flashes over the body of the patient; the pulse is quick, feeble, and irregular; great weakness of body, especially at the chest and stomach; the patient complains of being fatigued; children will often hang about their mothers, complaining of being sleepy; the throat soon begins to swell and become very painful; the respiration is now much impeded, and there is great difficulty in opening the mouth owing to the swelling behind the jaws; the salival glands are inflamed and swollen very hard; the eyes are also much inflamed. When the disease is a little advanced, small white cankers make their appearance in the mouth and throat; the lining membrane of the throat, stomach, and intestines is frequently attacked with inflammation, and sometimes with ulceration. In the early part of the disease the patient's tongue is very red, especially at the tip and edges; as the disease advances it becomes covered with a thick brownish crust. The lining membrane of the nose secretes a yellowish, watery fluid which is exceedingly troublesome, excoriating all parts with which it comes in contact. The patient is sometimes attacked with a severe delirium, vomiting, and purging, and is carried off in the brief space of twelve hours. When these fatal symptoms occur, very little can be done for the patient's relief, as no medicine will remain upon his stomach. This form of the disease has a strong tendency to putrefaction.

If the disease is not subdued by the ninth day, nearly all hope of the patient's recovery is lost, although he will appear much better and seem to encourage all who see him; even the physician himself is sometimes deceived into the belief of his patient's recovery. I have frequently known patients to exist, after the ninth day, in this tranquil and deceiving state for twelve or thirteen days, and then drop off so suddenly as to surprise even the nurse who was watching his every symptom.

In addition to the treatment given below, yeast should be employed internally as a gargle for the throat, and as a poultice externally; a strong decoction of bloodroot may also be used as a wash for the mouth and throat; the cankers should be occasionally wiped over with a soft brush, or swab, and a weak solution of lunar caustic, (one grain to the ounce of water.) The general treatment should be such as will most effectually subdue the putrefactive tendency of the disease. Much depends for success on the local treatment of the mouth and throat. Any medicine that will act upon and destroy the cankers may be employed as a gargle, some of which may be used internally.

The above treatment answers exceedingly well in all malignant diseases of the throat.]

TREATMENT.—If attended with anxiety, dejection, or oppression at the pit of the stomach, the use of cordials is indicated. It is seldom dangerous if left to nature, without any officious interposition. To drink plentifully of diluting liquids and to be kept cool, is all that is required. There is seldom any occasion for medicines in the mild form of this disease. The patient ought, however, to be kept within doors; be particularly cautious against colds, which will cause it to strike in, and endanger life; abstain from flesh,

strong liquors, or any thing heating, and drink freely of diluting liquors, with perhaps a little saffron in them. If the fever run high, the body must be kept gently open by clysters, with perhaps small doses of sal æratus and rhubarb. Many children have perished by the use of the lancet in this fever, which is almost certain death, as also are drastic purges.

To cure the scarlet fever it is only necessary to determine the humors gently to the surface of the body, and prevent their striking in upon the vitals. If proper care is taken of the patient, nature, in most cases, effects this herself: a little wine tinctured with saffron, acids, or wheys, may be allowed however. But if nature sinks, cordials, wine, wine whey, acids, saffron, boiled buttermilk, &c., must be used more freely, and the internal heat and vitality maintained.

The scarlet fever is sometimes attended with putrid or malignant symptoms, in which case it is always dangerous. When this happens, the treatment recommended for putrid fevers is applicable.

If a child is suffered to venture out immediately upon recovery from this fever, a dropsy or bloating often comes on suddenly, and which is more dangerous than the original disease. In this case, if the stomach is filled with black or bilious matter, which may be known by the rejection of all food and medicine, a gentle emetic should be given, (if a child,) as bloodroot, and repeated as often as necessary. In addition to other medicines, as prescribed in dropsy, poultices of bruised horse radish, or mustard seed, should be applied to the soles of the feet and palms of the hands.

GENERAL REMARKS.

I have given in the preceding pages, as the reader will perceive, a particular description of each species of fever, according to the common classification, together with my method of treatment of them, individually: yet, as was said by the good Buchan, were any one to ask me, what was good for a fever, I could not tell him without knowing the particulars of the patient's case. There cannot be a grosser error, than that of prescribing to the general name of a disease, though thousands of people swallow drugs every day on no better ground; and I consider it one great fault of the present practice of physic, that the *name* of the disease is prescribed for, instead of its *nature*. But this is a natural consequence of a *theoretical education*.

The symptoms and appearances of the particular case, therefore, should guide the administration of remedies. The following practical maxims, applicable to the various grades and symptoms of fever, may, therefore, make the subject more plain to the understanding:

In Agues—Throw out the cold phlegm from the stomach, and break up the foundation of the disease, by a thorough emetic, as the emetic weed—afterwards, if necessary, purge. The fever broke, give warm and strengthening tonics, as the tonic tincture, columbo, golden seal, &c. Never “kill the fit,” till the *cause* is removed.

In any fever: if the blood is thrown in too great quantity on the brain, causing pain and delirium, apply the anodyne wash freely to the head; draughts to the feet and hands, of onions, or garlicks, bruised and warmed, poke or scoke root, bruised, roasted potatoes, mustard, vinegar and rye flour; in putrid cases, change these poultices often, also give the fever powders, to relax the system and equalise the circulation.

If the fever rages high, or not—the fever powders, or other diaphoretics; and, if necessary, bathe the skin with a solution of potash.

If nature languishes, support her with cordials.

If acidity, or acid bile prevails in the stomach, give lime water, sal æratus and rhubarb, &c.

If cold night sweats—give acids, as lemon juice, elixir vitriol; five finger leaf tea; and rub the surface of the whole body with woolen cloths.

If the stomach is foul, which is most invariably the case—vomit, and, if necessary, and the patient not too feeble, purge.

Keep the bowels open, with laxatives, or clysters, in all cases.

In malignant and putrid cases, give acids plentifully; wine whey, boiled buttermilk, lemon and lime juice, elixir vitriol, cordials, &c.

In putrid fevers, when every thing else fails, and death threatens, apply fresh killed flesh, as before directed; give the fever powders; and still have hope.

Regulate the diet chiefly by the cravings of nature. Never refuse drink. To moderate the fever, give the spice bush bark in decoction.

QUINSY OR INFLAMMATORY SORE THROAT.

This disease is very common, and is frequently attended with great danger, occupying the glands, and frequently extending throughout the whole mucous membrane of the fauces, so as essentially to interrupt the speech, breathing, and swallowing. It prevails in winter and spring, and is most fatal to young people.

CAUSES.—In general it proceeds from the same causes as other inflammatory disorders, viz.: exposure to cold, and an obstructed perspiration. The quinsy is often occasioned by omitting some part of the covering usually worn about the neck, sitting near an open window, riding or walking against a cold northerly wind, or any thing that greatly cools the throat and neck. It may likewise be occasioned by spasmodic constriction, acrid or irritating food; and is sometimes epidemical.

SYMPTOMS.—Difficulty of swallowing, laborious respiration, stiffness of the neck, pricking pains about the cheeks, danger of suffocation, a violent fever, sometimes with, and sometimes without a swelling. The eyes appear red, and the face swells, and the patient is often obliged to keep himself in an erect posture for fear of suffocation; there is a constant nausea and inclination to vomit, and the drink instead of passing into the stomach is often returned by the nose. The patient is sometimes starved at last, merely from an inability to swallow any kind of food.

When the breathing is laborious, with straightness of the breast and anxiety, the danger is great. Though the pain in swallowing be very great, yet if the patient breathes easy there is not so much danger. An external swelling is no unfavorable symptom, but if it suddenly falls, and the disease affects the breast, the danger is very great. A frothing at the mouth, with a swelled tongue, a pale, ghastly countenance, and coldness of the extremities, are fatal symptoms.

REGIMEN.—Nothing should be taken that will excite inflammation; the food light, and the drink plentiful, diluting, and mixed with acids. The patient should be kept easy and quiet; he should not even attempt to speak but in a low voice. Such a degree of warmth as to promote a constant, gentle perspiration, is proper. When the patient is in bed, his head ought to be raised a little higher than usual. It is strictly necessary that the neck be kept warm, with soft flannel wrapt round it. We cannot here omit observing the propriety of a custom which prevails among the common people in some parts; when they feel any uneasiness about the throat, they wrap a stocking about it all night. So effectual is this simple remedy, that in

some places in the old world it passes for a charm. The custom is undoubtedly a good one. Currant jelly is an excellent help, and may be taken in the mouth and sucked down leisurely.

Gargles for the throat are very beneficial. They may be made of sage tea, with honey and vinegar. Cooling and resolving poultices may be applied round the neck, as carrots, bruised and warmed, wild indigo root, applied as poultice and fomentation; also, Indian posey, or white balsam, and blue flag root, the potato poultice, &c.

There is no disease in which the benefit of bathing the feet and legs in lukewarm water is more apparent; this ought, therefore, never to be neglected.

I will further add the following almost infallible preventive of the quinsy, if applied when it is first discovered to be coming on; a layer of common salt applied round the neck, and a little dissolved in the mouth and sucked; at the same time, let a gentle purge be taken, and warm teas to create a moderate perspiration, and prevent the determination to the neck.

MEDICINE.—After what is directed above, little appears to be left for medicine to effect. If the inflammation runs so high as to threaten immediate danger of suffocation, bleeding may be necessary. Otherwise, all that is necessary is to keep the head cool, the feet warm, the circulation equalized, and the pores open, by relaxing and diluent drinks, making use of the *fever powders*, if the fever runs high; keep the bowels gently open; blisters and clysters, if necessary.

At the commencement of the quinsy, an early emetic will frequently check its formation. Seven drops of oil of amber on a lump of sugar, and kept in the mouth without moving till dissolved, has often produced amazing effects. Gum guaiacum is almost a specific in this disease; half a drachm in powder may be mixed with currant jelly for a dose, and repeated occasionally.

When a suppuration will take place, in spite of our efforts to prevent it, we must then promote it by letting the patient inhale the steam of warm water through a funnel; applying warm poultices, as bread and milk, about the neck, and roasted figs kept constantly in the mouth. It sometimes happens, before the tumor breaks, that the swelling is so great as entirely to prevent any thing getting into the stomach. In this case, the patient can only be nourished by clysters of broth, &c.

In desperate cases, where the breathing is likely to be stopped, the operation of opening the windpipe may become necessary, to save life. With proper treatment, however, this can seldom happen.

The "*anodyne wash*," applied freely to the neck in a beginning quinsy, is excellent to allay inflammation.

MUMPS.

The mumps is a swelling of the glands about the throat, and is generally epidemic. It generally appears in the spring, and young persons of both sexes are more liable to its attacks. It is preceded by heaviness, lassitude, and a general sensation of uneasiness, which continue for several days. Stiffness, pain, and difficulty of motion, is then perceived about the articulation of the lower jaw. A swelling of the glands, situated under the jaws and diffused over the neck, next takes place, which sometimes increases so as to disfigure the countenance greatly. There is a good deal of fever. About the fourth day from the commencement of the swelling the disease is at its height. A gentle moisture then begins to exude from the surface of the swelling, accompanied with a general perspiration of the whole body,

which, if it be encouraged by keeping warm in bed, and drinking diluent fluids, appears to form the natural crisis of the disease, and the whole terminates favorably about the sixth day.

But if, from exposure to cold, or improper management, this natural process of the disease be interrupted, a singular translation of the morbid matter takes place. The tumors about the throat suddenly subside, and are followed by swellings of the testicles of the male sex, and of the breasts in the female, accompanied with a fresh exacerbation of the fever. If the swellings of these parts be imprudently checked by exposure to cold, or if they suddenly subside, the brain is apt to become affected, occasioning convulsions, delirium, and other dreadful symptoms, which finally terminate in death.

In the treatment of this disease, evacuations of all kinds are not only improper but dangerous. If the bowels are much constipated, they may be relieved by a clyster. The patient ought to keep warm in bed, and encourage perspiration by drinking plentifully of diluting liquors, as mint, whey, balm, sage, and such like teas. The effort of nature to resolve the tumors by exudation, should be promoted by covering the parts with soft flannel. If the swellings show a disposition to subside too early, they should be covered with blistering plasters, or rubbed with stimulating liniment.

Should the tumor seat in the testicles, a poultice of boiled beans, or of bean meal, should be applied, which will extract the inflammatory matter. If the swelling should suddenly subside, and any tendency to delirium manifest itself, the whole scrotum ought to be immediately enveloped in a blistering plaster. By this means the dangerous consequences of its falling on the brain are prevented.

It is not an uncommon sequel of this complaint to find sometimes one, and sometimes both testicles, after the inflammation has ceased, gradually shrink in size, and finally wither wholly away. The mumps is decidedly an infectious disease, and rarely attacks but once.

ERUPTIVE FEVERS—SMALL POX.

This disease, which originally came from Arabia, is, since the discovery of vaccination, not so general as heretofore; nor does it appear to be of so malignant a type. It is, nevertheless, a most contagious malady, and for many years proved the scourge of civilized, as well as uncivilized nations. The small pox never attacks but once; and children are most liable to have it.

The disease is distinguished into the distinct and confluent kind; the latter of which is always attended with danger. The difference, however, I conceive to consist only in the degree of malignity.

CAUSE.—It seems to be born with us, and to lie hid until some violent excitation of the blood, from the introduction of the infectious particle, raises the ferment, and occasions the appearance of those eruptions.

SYMPTOMS.—Children commonly look dull, seem listless and drowsy for a few days before the more violent symptoms of the pox appears. They are likewise more inclined to drink than usual, have little appetite for solid food, complain of weariness, and upon taking exercise are apt to perspire. Then comes on slight fits of cold and heat, by turns, which, as the time of eruption approaches, become more violent, accompanied with pain in the head and loins, vomiting, &c. The pulse is quick, skin hot, and the patient restless.

When asleep, he wakes with a start or horror, which shows the eruption is approaching; convulsion fits in children also indicate this.

About the third or fourth day from the time of sickening, the pustules generally begin to appear; sometimes, indeed, they may appear sooner, but that is no favorable symptom. At first they resemble flea bites, appearing first on the face, arms, and breast.

The most favorable symptoms are a slow eruption, and an abatement of the fever as soon as the pustules appear. In the mild, distinct kind, the pustules seldom appear before the fourth day, and they generally keep coming out gradually for several days after. Pustules which are distinct, with a florid red basis, and which fill with thick, purulent matter, first of a whitish, and afterwards of a yellowish color, are best.

A livid brown color of the pustules is an unfavorable symptom: as also when they are small and flat, with black specks in the middle. Pustules which contain a thin watery ichor are very bad.

A great number of pox on the face is always attended with danger. It is also a bad sign when they run into one another. It is a most unfavorable symptom when purple, brown, or black spots are interspersed among the pustules. Bloody stools or urine, with a swelled abdomen, are bad symptoms, as is also a continual strangury. Pale urine, and a violent throbbing of the arteries of the neck are signs of an approaching delirium, or of convulsion fits; when the face does not swell, or falls before the pox comes to maturity, it is very unfavorable. If the face begins to fall about the eleventh day, and at the same time the hands and feet begin to swell, the patient generally does well; but when these do not succeed each other, there is reason to apprehend danger. A brown crust on the tongue is an unfavorable symptom; cold shivering fits at the height of the disease are likewise unfavorable. Grinding of the teeth when it proceeds from an affection of the nervous system, is a bad sign. Adults suffer most; pregnant women generally miscarry.

DIET.—Throughout this disease, be cautious of disturbing nature in her operations. A little officious meddling disconcerts her, and renders the disorder unmanageable. All that is necessary, generally speaking, during the eruptive fever, is to keep the patient cool and easy, allowing him to drink freely of some weak, diluting liquors, as balm tea, barley water, apples boiled in water, or wine whey, cider whey, or vinegar whey, or barley water made acid, boiled buttermilk, clear whey, &c.; the more he drinks the better. He should not be confined to his bed, but should sit up as much as he is able, and should have his feet and legs frequently bathed in lukewarm water. His food ought to be light, and he should be as little disturbed with company as possible. Much mischief is done at this period by confining the patient too soon to his bed and plying him with warm cordials, or sudorific medicines. This, like most other popular mistakes, is the abuse of a very just observation—*That where there is moisture on the skin, the pox rise better, and the patient is easier than when it continues dry and parched.* But that is no reason for forcing the patient into a sweat. Sweating never relieves unless it comes spontaneously, or is the effect of drinking weak diluting liquors. The eruptive matter cannot be thrown out at once with a sweat, as in some fevers; a fermentation, or concoction must be gone through with before the infectious matter can be separated from the blood. This nature effects in her own time. Every thing that heats and inflames the blood, increases the fever, and pushes out the pustules prematurely. This increases the number, makes them run into one another, and they generally fall in before they come to maturity.

The body should be kept open, and the vital principle supported; let the patient have a constant accession of fresh air in his chamber, a clean shirt every other day at farthest, which may in the worst cases be allowed. No two patients should be allowed in the same room. Cleanliness in every thing should be strictly enjoined.

MEDICINE.—This disease is generally divided into four different periods, viz. : the fever which precedes the eruption; the eruption itself; the suppuration or maturation of the pustules; and the secondary fever. It has already been observed, that little more is necessary during the primary fever, than to keep the patient cool and quiet, allowing him to drink diluting liquors, and bathe his feet frequently in warm water. This is generally sufficient, except, perhaps, in some adult cases. When a full pulse, dry skin, and other symptoms of inflammation are present, more energetic means must be used, as small doses of the *fever powders*, to relax the system and moisten the skin, poultices to the feet, anodynes, and, if necessary, clysters.

If there is nausea, or inclination to vomit, a gentle emetic, as blood root, or ipecac., may be given; and afterwards weak camomile tea, to cleanse the stomach. At the beginning of a fever, nature generally attempts a discharge, either upwards or downwards, which, if promoted by gentle means, would tend greatly to abate the violence of the disease.

After the pustules have made their appearance, our business is to promote the suppuration, by diluting drink, light food, and, if nature seems to flag, by generous cordials. When a low, creeping pulse, faintness, and great loss of strength, render cordials necessary, we would recommend good wine, which may be made into negus with an equal quantity of water, and sharpened with the juice of an orange, the jelly of currants, or the like. Wine whey, sharpened as above, is likewise a proper drink in this case; care being taken not to overheat the patient by any of these things. Excessive restlessness in children should be calmed by a little syrup of poppies.

If the patient be troubled with a strangury, or suppression of urine, which often happens in the small pox, he should be frequently taken out of bed, and if he be able, should walk across the room with his feet bare. When he cannot do this, he may frequently sit on his knees in bed, and should endeavor to pass his urine as often as he can. In the mean time, and when these do not succeed, ten drops of the oil of pumpkin seeds, for an adult, may be taken every thirty minutes, or strong tea of the seeds, till relief is obtained; or an infusion of clivers may be drank, as necessary. A plentiful discharge of urine greatly relieves the patient in this disease.

If the mouth be foul, and the tongue dry and chapped, it ought frequently to be washed and gargled with a mixture of water, honey and vinegar.

When purple, black, or livid spots appear among the small pox, tonics and antiseptics must be immediately administered, as yeast, sharpened with elixir vitriol. The patient's drink ought likewise in this case to be generous, as wine, or strong negus, acidulated with elixir vitriol, vinegar, lemon juice, &c. This treatment is also necessary when the matter in the pustules is thin and not duly prepared.

When the eruptions strike in suddenly, before they have arrived at maturity, the danger is very great. In this case blistering plasters may be applied to the wrists and ankles, and draughts to the feet; and the patient's spirits must be supported with good and agreeable company, and, if necessary, with cordials.

The most dangerous period of this disease, is what we call the *secondary fever*. This generally comes on when the pustules begin to blacken, or turn on the face; and most of those who die of the small pox are carried off by this fever.

Nature generally attempts, at the turn of the small pox, to relieve the patient by loose stools. Her endeavors this way are by no means to be counteracted, but promoted, and the patient, at the same time, supported by food and drink of a nourishing and cordial nature.

If, at the approach of the secondary fever, the pulse be very quick, hard, and strong, the heat intense, and the breathing laborious, with other symptoms of inflammation of the chest, the patient must be immediately bled.

But if the patient be faintish, the pustules become suddenly pale, and if there be great coldness in the extremities, blistering plasters must be applied, and the patient supported with generous cordials. Wine and even spirits have sometimes been given in such cases with amazing success.

When the pustules begin to turn of a yellow color, they may be opened with a lancet or needle, and the matter be absorbed with a little rag, or lint. As they fill again, let the opening be repeated. Opening the pustules not only relieves the patient, but also in a great measure prevents the disagreeable pitting, which spoils many a handsome face.

It is generally necessary, after the small pox are gone off, to purge the patient. If, however, the body has been open through the whole course of the disease, or if buttermilk and other things of an opening nature have been drank freely, after the height of the small pox, purging becomes less necessary; but it ought never wholly to be neglected: For young children, senna with a little rhubarb, may be used, and given in small quantities till it operates. For a child five or six years of age, sharper purges may be used, as rhubarb, in divided doses, and repeated every third or fourth day, three or four times. For older children and adults, the dose must be proportionate.

When a cough, a difficulty of breathing, or other symptoms of consumption succeed to the small pox, the treatment directed in consumption becomes necessary.

KINE POX.

Vaccination with the kine, or cow pock, is now fully established to be an antidote against the small pox. This was discovered and introduced about the beginning of the nineteenth century, by Dr. Jenner, an Englishman; [about the same time it was discovered by a medical man in some of the New England States, without the knowledge of what the other had discovered;] since when, although at first, like every other improvement in medicine, it was frowned upon and proscribed by the ruling faculty, it has come into such general use, that the loathsome small pox is now nearly extinguished.

This discovery arose from the following circumstances: In many parts of England, the cows are liable to an eruption on their paps or udders, which was occasionally communicated to the hands or arms of those who milked them, producing an ulcer, and some degree of fever; and it had been observed that those who had undergone this disease, known by the name of cow pock, were not liable to the small pox. This was noticed by Dr. Jenner, and he satisfied himself further by experiments. He ascertained that it was a much milder disease than the small pox, and that it effectually secured those who had been infected with it, from afterwards being liable to the small pox infection—that the vaccine pock was not infectious but by inoculation—and that it was never fatal.

The process of inoculation is as follows:

1. Take the watery slime, at about the sixth or eighth day, from the arm of a healthy person who has been inoculated, while the blister is still in its clear state; for when it becomes yellow, it is not so certain to give the infection.

{To obtain the matter, use a pointed quill, open the pustule with a lancet, and insert the point of the quill well into its contents; allow the matter to dry on the quill. The operation for vaccination is performed by raising the scarf skin with the point of a lancet, then introduce the point of the quill in

the incision, allowing it to remain for fifteen or twenty minutes, when it should be removed. The matter should be used as soon as possible after being taken, as its virtues are impaired by long keeping and exposure to the air.]

All excesses in eating, drinking, and exercise, should be avoided, as the system will be thoroughly affected; and frequently the person will experience chills and a slight fever, with kernels in their groins and under their arms; and the sore on the arm may acquire considerable size. If it is necessary to carry the infection any distance, or time, a cotton thread may be saturated with the fresh matter, dried moderately before a fire, and dropped into a vial. This may be cut to pieces, and moistened with spittle on a bit of glass, and the bigness of half a pin's head will be sufficient to inoculate a person. If it is intended to preserve the infection for a considerable time, the first scab should be saved, taken off as soon as the watery state subsides. Seal this up in a vial, and it will retain its power of inoculating for years.

Could all parents be persuaded to inoculate their children with vaccine matter soon after birth, the small pox might be entirely eradicated in time. That is the proper time for doing it; although from the inconsiderateness of people, vaccination is generally delayed till the small pox has actually commenced its ravages among them, when in the midst of alarm and confusion, they fly to it for relief; and before this is obtained, perhaps numbers have fallen victims. This culpable delay, too, is well calculated to keep the infection in the country, and preserve it for posterity.

CHICKEN POX.

This disease, like the small pox, seems to depend upon a specific contagion, and affects a person but once in his life. No danger ever attends it.

The eruption is sometimes preceded by chilliness, flushings and heat, pains in the head, and back, thirst, restlessness, and a quick pulse; but at other times no such symptoms are perceptible. About the second or third day the pustules become filled with a watery fluid, which is never converted into yellow matter, as in the small pox, and about the fifth day they usually dry away, and are formed into crusts or scabs.

In general, it is only necessary to make use of a spare regimen on the first appearance of the eruption, and to give one or two cooling purgatives afterwards.

MEASLES.

The measles appeared in Europe about the same time with the small pox, and have a great affinity to that disease. They both came from the same quarter of the world, are both infectious, and seldom attack the same person but once. The measles are most common in the spring season, and generally disappear in summer. The disease itself, when properly managed, seldom proves fatal; but its consequences are often very troublesome.

SYMPTOMS.—The measles, like other fevers, are preceded by alternate fits of heat and cold, with sickness and loss of appetite. The tongue is white and generally moist. There is a short cough, a heaviness of the head and eyes, drowsiness and a running at the nose; inflammation and heat in the eyes, accompanied with a defluxion of sharp rheum, and great acuteness of sensation, so that they cannot bear the light without pain. The eyelids frequently swell so as to occasion blindness. The patient generally complains of his throat, and a vomiting or looseness often precedes the eruption. The

stools in children are commonly greenish; they complain of an itching of the skin and are remarkably peevish. Bleeding at the nose is common, both before and in the progress of the disease.

About the fourth day, small spots, resembling flea bites, appear, first upon the face, then upon the breast, and afterwards upon the extremities; these may be distinguished from the small pox by their scarcely rising above the skin, and never suppurating. The fever, cough, and difficulty of breathing, instead of being removed by the eruption, as in the small pox, are rather increased, but the vomiting generally ceases. At the sixth or seventh day, the pustules turn pale on the face, and afterwards upon the body; so that by the ninth day they entirely disappear. The fever, however, and difficulty of breathing, often continue, especially if the patient has been kept upon too hot a regimen; purple spots may likewise be occasioned by this fever.

A violent looseness sometimes succeeds the measles, in which case the patient's life is in imminent danger.

Such as die of the measles, generally expire about the ninth day from the invasion, and are commonly carried off by an inflammation of the lungs.

The most favorable symptoms are, a moderate looseness, a moist skin, and a plentiful discharge of urine.

When the eruption suddenly falls in, and the patient is seized with a delirium, he is in the greatest danger. If the measles turn too soon of a pale color, it is an unfavorable symptom, as are also, great weakness, vomiting, restlessness, and difficulty of swallowing. Purple or black spots, appearing among the measles, are very unfavorable. When a continual cough or looseness succeeds the disease, there is reason to suspect an approaching consumption of the lungs.

THE CURE.—The measles require a treatment not much different from the small pox. Our business is to assist nature by proper cordials, in throwing out the eruption, if her efforts be too languid. Blood-letting is almost certain death. The cool regimen is necessary here, as in the small pox. The food must be light, and the drink diluting. The drink may be cider whey, vinegar whey, buttermilk, or for weakly children, thin broth; decoctions of liquorice, with marsh-mallow roots and sarsaparilla, infusions of flaxseed, or of the flowers of elder, balm tea, and barley water. These, if the patient be costive, may be sweetened with honey.

Medicines are seldom necessary during this disorder; but as soon as the eruptions begin to disappear, cathartics should be administered, as in the small pox, which, for obvious reasons, are necessary in all eruptive fevers. Bathing the feet and legs frequently in lukewarm water, both tends to abate the violence of the fever, and promotes the eruption.

The patient is often greatly relieved by vomiting. When there is a tendency this way, it ought to be promoted by drinking warm water, or weak camomile tea, or even bloodroot.

When the cough is very troublesome, and breathing difficult, the patient may hold his head over the steam of warm water, and draw the vapor into his lungs. He may also take softening and demulcent cough preparations, with the addition of a little anti-spasmodic or nerve, as the valerian or lady's slipper. If, at the turn of the disease, the fever assumes new vigor, and there appears to be great danger of suffocation, a blister must be applied to the stomach, and draughts to the feet, to prevent the load from being thrown on the lungs, where, if an inflammation should fix itself, the patient's life will be in imminent danger.

In case the measles should suddenly disappear, or before their proper time, it will be necessary to pursue the same method which we have recommended when the small pox recede. The patient must be supported with wine and cordials, tinctured with saffron, and blisters applied to the legs and

arms. Warm poultices may likewise be applied to the feet and palms of the hands, diaphoretic teas, &c. When inflammation attacks the chest, a warm bath, strongly impregnated with salt, has proved a powerful remedy.

If the symptoms manifest a tendency to a putrid or malignant form of disease, they must be treated accordingly, as directed in slow nervous fever.

If purple or black spots appear, the patient's drink should be sharpened with elixir vitriol, small beer, and yeast; buttermilk and tonics, as directed in the small pox. Opiates, or syrup of poppies, may sometimes be useful.

After the measles are gone off, the patient ought to be purged, but not with salts. And it will always be well also, to purify the juices with some cleansing syrup, and thereby prevent the serious consequences so often resulting from the measles, from infectious matter centering upon the lungs, or some internal part, causing catarrh, asthma, ulceration, &c. Patients recovering from this disease, should also be careful what they eat or drink. Their food should be light for some time, and taken often, and their drinks diluting, as buttermilk, whey, &c., at the same time guarding against colds.

Should a cough and other symptoms of consumption remain after the measles, the treatment recommended for the consumption becomes proper. The "balsam of life" is a very good medicine after the measles. The patient ought to remove to a free air, if in a large town, and take daily exercise on horseback.

ERYSIPELAS, OR ST. ANTHONY'S FIRE.

The St. Anthony's fire is an external inflammation, which generally affects the face, and sometimes the breast. It most commonly attacks between the age of thirty and forty; and persons of a sanguine habit are most liable to it. Every part of the body is liable to be attacked by erysipelas, but it most frequently seizes the legs and face, especially the latter.

CAUSES.—Wounds, bruises, scratches of pins or needles, surgical operations, and violent passions or affections of the mind. Those which produce an internal inflammation, or an acrid humor, heats and colds, or obstruction of any customary evacuation; sudden exposure to cold when the body has been greatly heated, by drinking to excess, &c.

SYMPTOMS.—The St. Anthony's fire attacks with a shivering, thirst, loss of strength, pain in the head and back, heat, restlessness, and a quick pulse; and sometimes vomiting, and delirium. On the second, third, or fourth day, the part swells, becomes red, and small pustules appear, at which time the fever generally abates. When it seizes the foot, the parts contiguous swell, the skin shines, and if the pain be violent, it will ascend to the leg, and will not bear to be touched.

When it attacks the face, it swells, appears red, and the skin is covered with small pustules, filled with clear water. One or both eyes are generally closed with a swelling; there is inflammation of the throat, and difficulty of breathing and swallowing. If the mouth and nostrils be dry, and the patient drowsy, there is reason to suspect an inflammation of the brain.

If the erysipelas affects the breast, it swells and becomes exceedingly hard, with great pain, and is apt to suppurate. There is a violent pain in the armpit, on the side affected, where an abscess is often formed.

If, in a day or two, the swelling subsides, the heat and pain abate, the color and part turn yellow, and the scarf skin breaks and falls off in scales, the danger is over. This disease is seldom dangerous; but when the constitution is bad, the legs will sometimes swell to a prodigious size, and the cure proves difficult. It has often proved fatal to people who were in the decline of life, and of a scorbutic habit.

When the erysipelas is large, deep, and affects a very sensible part of the body, the danger is great. If the red color changes into a livid black, it will end in mortification. Sometimes the inflammation cannot be discussed, but comes to a suppuration, in which case gangrene or mortification often ensue.

Such as die of this disease, are commonly carried off by the fever, which is attended with difficulty of breathing, and sometimes delirium and great drowsiness. They generally die about the seventh or eighth day.

REGIMEN.—The patient must be neither kept too hot nor too cold. When the disease is mild, it will be sufficient to keep within doors, and promote perspiration by diluting liquors. The diet ought to be slender, and of a moderately opening and moistening quality, as gruel, panada, chicken or barley broth, with cooling herbs, or fruits; avoiding strong meats, drinks, spices, and all things that may heat and inflame the blood. The drink may be wheys, an infusion of elder flowers, and such like. If the pulse is low, and the spirits sunk, the patient must be supported with negus, and other things of a cordial nature. A little wine may be mixed with his food.

MEDICAL TREATMENT.—My method is simply this: apply the *anodyne wash* plentifully, with cloths, to the inflamed part; keep the bowels gently open, and the system relaxed, the pores open, and the circulation equalized, by diluent and diaphoretic drinks. This has never failed me of giving speedy relief. [Cover the parts with scorched flour, or form a paste with whiting, and spread it over the parts affected; keep it from the air as much as possible.]

Bathing the feet and legs frequently in lukewarm water, when the disease attacks the face and brain, has an excellent effect. It tends to make a derivation from the head, and seldom fails to relieve the patient. When bathing proves ineffectual, poultices of onions, &c., may be applied to the soles of the feet, for the same purpose.

When the erysipelas leaves the extremities and seizes the head, so as to occasion a delirium or stupor, it is absolutely necessary to open the bowels with a purge. If clysters and mild purgatives fail, stronger ones must be given. Blistering plasters may likewise be applied to the neck, or behind the ears, and sharp poultices laid to the soles of the feet.

When the inflammation cannot be discussed, and the part has a tendency to ulcerate, it will then be proper to promote suppuration, by the application of ripening poultices, with saffron, warm fomentations, and such like.

When the black, livid, or blue color of the part shows a tendency to mortification, tonics and acids must be administered, as recommended in the small pox. It will also be proper to apply antiseptics to the part, as charcoal and yeast.

In what is commonly called the *scorbutic erysipelas*, which continues for a considerable time, it will be necessary to give such things as purify the blood and promote perspiration. Such as are liable to frequent attacks of the St. Anthony's fire, ought carefully to guard against all violent passions, to abstain from strong liquors, and fat and highly nourishing food, and to take sufficient exercise, carefully avoiding extremes of heat and cold. Their food should be of a cooling nature, and their drink diluting, such as small beer, whey, buttermilk, and such like. They should never suffer themselves to be costive, to obviate which, if necessary, they should use clysters.

PLEURISY.

A pleurisy is an inflammation of the *pleura*, or membrane that lines the ribs or rib muscles; the first is called the *true*, and the latter the *bastard* pleurisy. The true pleurisy is distinguished into the moist, and the dry. In the former the patient spits freely, in the latter, none at all. The bastard pleurisy is more external, and chiefly affects the muscles between the ribs. Pleurisies are most common in the spring.

CAUSES.—The pleurisy may be occasioned by whatever obstructs perspiration, as exposing the body to cold after exercise; cold, northerly winds; drinking cold water when hot; sleeping without doors, on damp ground; wet clothes; plunging into cold water when covered with sweat. It may likewise be occasioned by the stoppage of the usual evacuations, as old ulcers, issues, sweating of the feet; the sudden striking in of any eruption, as the itch, measles, or small pox; also, by violent exercise, as running, wrestling, leaping, lifting great weights, blows on the breast, &c.

SYMPTOMS.—This, like most other fevers, generally begins with chilliness and shivering, which are followed by heat, thirst, and restlessness. To these succeeds a violent pricking pain in one of the sides, among the ribs, which is greatly increased on drawing in the breath. Sometimes the pain extends toward the back bone, sometimes toward the fore part of the breast, and at other times toward the shoulder-blades.

The pulse in this disease is commonly quick and hard, the urine high colored; and if blood be let, it is covered with a tough crust, or buffy coat. It is attended with an almost incessant cough, a dry, furred tongue, the breathing small, frequent, and difficult, great anxiety about the heart, perpetual moaning, restlessness, &c.

THE CURE.—Nature generally endeavors to carry off this disease by a critical discharge of blood from some part of the body, by expectoration, sweat, loose stools, thick urine, and the like. We ought, therefore to second her intentions, by lessening the force of the circulation, relaxing the vessels, diluting the humors, and promoting expectoration.

For these purposes the diet ought to be cool, slender, and diluting; avoiding every thing of a heating nature. His drink may be whey, buttermilk, or camomile tea. Barley-water, with a little honey or currant jelly mixed with it, is likewise a very proper drink. It is made by boiling an ounce of pearl or hulled barley, in three pints of water to two, and strained. The decoction of figs, raisins, and barley, is likewise very proper, as also flaxseed tea, slippery elm, and liquorice, maiden hair, and such like demulcents. These and other diluting liquors are not to be drank in large quantities at a time, but the patient ought to be continually sipping them, so as to render his mouth and throat always moist. All his food and drink should be taken lukewarm.

The patient should be kept every way quiet and easy. His hands and feet ought frequently to be bathed in warm water.

Warm fomentations applied to the sides and chest, must not be omitted, particularly if the case is severe. Hops, or oats, warmed with vinegar, and laid on as warm as can be borne, for a fomentation, affords a great relief; or a poultice of fresh dug roasted potatoes may be applied over the chest as warm as possible; this rarely fails of relieving the constriction, or spasms.

The "anodyne wash" may also be applied freely, warm. The vapor bath may also be applied to the sides with pipes. At the same time, strong draughts should be applied to the feet, as in fevers. Keep up the sweat till the pain is gone.

The relaxation and perspiration may be assisted, internally, by the fever powders, Indian turnips, pleurisy root, and sweating drinks.

Blood-letting is commonly practised in this disease, and is considered by many indispensable. The relief it generally gives is certainly some excuse for it; but this relief is apparent only in proportion as the means here recommended are neglected. I have never found it necessary to resort to blood-letting; the treatment here laid down has never failed of quickly relieving the pleurisy in my practice. And when this is sufficient, certainly every one must allow it to be far preferable; because in this case, when the disease is conquered, the patient is left in a measure, well; whereas, when the blood has been profusely drawn, the patient is left feeble and extremely debilitated, requiring months, perhaps, to regain his strength.

The blood may be many ways attenuated or thinned, without bleeding, as well as the pain of the side eased; this last may be done with fomentations, in the manner above described, and blistering. Cabbage leaves, applied warm to the side, greatly relax the parts. Fomentations of camomile and elder flowers, and mallows, are also proper. The herbs may be put into a flannel bag, and laid to the side warm; a blister often affords great relief.

Cathartics are generally proper in the beginning of a pleurisy. The mandrake has often afforded astonishing relief. Afterwards, if the patient be costive, a clyster of thin water gruel, or of barley water, in which a handful of mallows, or some emollient vegetable has been boiled, may be daily administered.

The expectoration may be promoted by sharp, mucilaginous medicines, as Indian turnip and comfrey, marsh mallows, low mallows, skunk cabbage, sharpened with vinegar or lime juice, and sweetened with honey; slippery elm, liquorice, blood root, buck horn brake, flaxseed, olive oil, or sweet oil, oil of sweet almonds, gum arabic, &c. To some of these may be added syrup of poppies, or a little camphor.

The seneca rattle-snake root, in decoction, is by some considered almost a specific in the pleurisy. It may be prepared in proportion of an ounce boiled to a pint; and, after proper evacuations, the patient may take two, three, or four table spoonfuls of this decoction, according as the stomach will bear it, three or four times a day. If it should vomit, a little peppermint or cinnamon may be added. As this medicine promotes perspiration and urine, and likewise keeps the body easy, it must be of great service.

On recovery, it will be well to continue, for a time, the drinks of butter-milk, whey, and such like; and if the patient is much debilitated, bitters and tonics may be used.

BASTARD PLEURISY.—This species of pleurisy goes off by keeping warm for a few days, drinking plenty of diluting liquors, and observing a cooling regimen.

It is known by a dry cough, a quick pulse, and a difficulty of lying on the affected side, which last does not always happen in the true pleurisy. Sometimes this disease proves obstinate; when blistering may be resorted to. If nausea prevails, a gentle vomit may be given.

INFLAMMATION OF THE DIAPHRAGM.

This disease is so nearly connected with the pleurisy, and resembles it so much in the manner of treatment, that it is scarcely necessary to consider it as a separate disease.

SYMPTOMS.—An acute, continual fever, attended with an inflammatory pain, which is greatly increased by every inspiration, or coughing, sneezing,

or evacuations of the excrements, or urine; a sensation of fulness in the stomach, nausea, deep, quick, small, and painful respiration; the patient endeavoring to prevent the motion of the diaphragm; perpetual, but not violent delirium, frequent laughing, and great anxiety about the heart.

This disorder is always extremely dangerous. If the diaphragm suppurates, the pus either falls into the cavity of the abdomen, or, breaking upwards, produces an empyema; either case is almost certain death.

THE CURE.—The regimen and medicine are in all respects, the same as in pleurisy. We shall only add, that, in this disease, emollient clysters are peculiarly useful, as they relax the bowels, and by that means make derivation from the part affected. They may be administered every hour.

INFLAMMATION OF THE LUNGS.

As this disease affects an organ which is absolutely necessary to life, it must always be attended with danger. Persons who abound with thick blood, whose fibres are tense and rigid, who feed upon gross aliment, and drink strong liquors, are most liable to an inflammation of the lungs. It is more fatal to those who have a flat and narrow chest, and to such as are afflicted with an asthma, especially in the decline of life. Sometimes the inflammation reaches to one lobe of a lung only; at other times the whole organ is affected, in which case the disease generally proves fatal.

CAUSES.—An inflammation of the lungs is sometimes a primary disease, and sometimes it is the consequence of other diseases, as a quinsy, a pleurisy, &c. It proceeds from the same cause as pleurisy, viz.: an obstructed perspiration, from cold, wet clothes, &c., or from an increased circulation of the blood by violent exercise, the use of ardent spirits, and such like. The pleurisy and inflammation of the lungs are often combined.

Those who have labored under a former attack of this complaint are much predisposed to returns of it.

SYMPTOMS.—Most of the symptoms of inflammation of the lungs are the same as in pleurisy; only in the former the pulse is more soft, and the pain more obtuse and less acute; but the difficulty of breathing, and oppression at the chest is generally greater. The pain is prodigiously increased on coughing, or a full inspiration.

DIET.—As the regimen, &c., are in all respects the same as in pleurisy, we shall not here repeat them, but refer the reader to the treatment of that disease. It may not, however, be improper to add, that the steam of warm water, taken in by the breath, which serves as a kind of internal fomentation, helps to attenuate the impacted humors. If the patient have loose stools, and is not weakened by them, they are not to be stopped, but rather to be promoted by the use of emollient clysters. The diet must be very slender, as weak broths, sharpened with the juice of orange or lemon, and such like.

The patient at the beginning is cold and hot by turns, has a small quick pulse, feels a sense of weight upon his chest, breathes with difficulty, and sometimes complains of a pain and giddiness in his head. His urine is usually pale, and his color very little changed.

It will be very necessary to assist expectoration by some sharp medicines, such as have been recommended in the pleurisy. Blisters have generally a good effect, and ought to be applied early. If the patient do not spit, he must have a gentle purge administered. Afterwards, his body may be kept open by clysters, and expectoration promoted.

The most favorable termination of inflammation of the lungs is by resolu-

tion, followed by copious expectoration, great flow of urine with a sediment, diarrhoea, mild sweats, hæmorrhage from the nose, &c. When these take place the febrile symptoms abate.

A high degree of fever, attended with delirium, much difficulty of breathing, acute pain, a dry cough, or an expectoration of a dark black colour, sudden cessation of pain, or of the expectoration, followed by a lividness of the lips and countenance, and sinking of the pulse, denote great danger.

When an inflammation of the lungs does not yield to blistering, diluents, fomentations, and other evacuations, it commonly ends in suppuration, which is more or less dangerous according to the part where it is situated. When this happens in the pleura it sometimes breaks outwardly, and the matter is discharged by the wound. When the suppuration happens within the substance or body of the lungs, the matter may be discharged by the process of expectoration; but if the matter floats in the cavity of the chest, between the pleura and the lungs, it can only be discharged by an incision made between the ribs.

If the patient's strength do not return after the inflammation is to all appearance removed; if his pulse continue quick, though soft, his breathing difficult and oppressed; if he have cold shiverings at times, his cheeks flushed, his lips dry; and if he complains of thirst and want of appetite, there is reason to fear a suppuration, and that a phthisis or consumption of the lungs will ensue.

When this disease proves immediately fatal it is generally by an effusion of blood or lymph into the cellular texture of the lungs, so as to occasion suffocation, which usually happens between the third and seventh day; but it may likewise prove fatal by terminating either in suppuration or gangrene. This last, however, very seldom happens.

INFLAMMATION OF THE BRAIN.

This is sometimes a primary disease, but often only a symptom of some other malady, as the inflammatory, eruptive, or spotted fever. It is more commonly, however, as a primary disease, in warm climates, and with persons in the prime of life. The passionate, the studious, and those whose nervous system is irritable in a high degree, are most liable to it.

CAUSES.—Night watching, with hard study, hard drinking, anger, grief, or anxiety; stoppage of usual evacuations, as the bleeding piles, menses, &c.; imprudent exposure to the heat of the sun, and sleeping in the hot sun with the head uncovered; the striking in of erysipelas, &c. It may also be occasioned by blows or bruises upon the head.

SYMPTOMS.—Inflammation of the brain is generally ushered in by pain in the head, redness of the eyes, a violent flushing of the face, disturbed sleep, dryness of the skin, costiveness, a retention of urine, a small dropping of blood from the nose, singing in the ears, and extreme sensibility of the nervous system.

When the inflammation is formed, the symptoms in general are similar to those of an inflammatory fever. The pulse indeed, is often weak, irregular, and trembling; but sometimes it is hard and contracted. When the brain itself is inflamed, the pulse is always soft and low; but when the inflammation only affects the membranes of the brain, it is hard. A remarkable quickness of hearing is a common symptom of this disease; but that seldom continues long. It is also known by the absurd behaviour of the patient; incoherent, wild, or unmeaning discourse; redness, rolling, or glaring of the eyes; throbbing, and a tremulous motion of the temporal artery; a constant drowsiness, without being able to sleep.

A constant trembling and starting of the tendons is an unfavorable symp-

tom, as are also a suppression of urine, a total want of sleep, a constant spitting, and grinding of the teeth. A true inflammation of the brain is often fatal on the third, fourth, or seventh day, at farthest. If it does not come to its height on those days, it frequently terminates in incurable madness, or lethargy. White stools, or white urine are the harbingers of death. Spitting at the by-standers, gnashing or grinding of the teeth, snatching of the bed clothes, are forerunners of dissolution.

If accompanied with laughter, if a gentle sleep comes on, a free perspiration, a copious discharge of blood from the nose, the bleeding piles, and the delirium abates at times, a recovery may be expected.

REGIMEN.—The patient ought to be kept very quiet. Company, noise, and every thing that affects the senses, or disturbs the imagination, increases the disease. Even too much light is hurtful; for which reason the patient's chamber ought to be a little darkened. It is not, however, necessary to exclude the company of an agreeable friend, as this has a tendency to soothe and quiet the mind. The patient must as far as possible be soothed and humored in every thing. Contradictions will ruffle his mind and increase his malady. A little of any thing that the mind is set upon, though not quite proper, will hurt the patient less than a positive refusal. In a word, whatever he was fond of, or used to be delighted with while in health, may here be tried, as pleasing stories, soft music, or whatever has a tendency to soothe the passions and compose the mind; as the soft noise of water distilling by drops into a basin, and the patient trying to reckon them. Any low uniform sound has a tendency to procure sleep.

The aliment ought to be light, as panada, water gruel, sharpened with acids and jellies. The drink small, diluting, and cooling, as whey, barley water, and the like.

TREATMENT.—In an inflammation of the brain, nothing more certainly relieves the patient than a free discharge of blood from the nose.

In the cure the chief thing to be attended to is to check the determination of blood to the brain. This may be attempted by applying blisters to the soles of the feet, and on the back of the neck, warm poultices and fomentations to the extremities, leeches to the temples, bleeding in the jugular vein, or arm, if necessary, and cold applications to the head. For this last purpose, the cooling "anodyne wash" should be profusely and constantly applied over the whole head; this will give the most grateful relief, and allay the inflammation.

Give smart purgatives, and keep the bowels open with clysters two or three times a day. The patient's feet and legs may be frequently bathed in warm water, and he may sit over the steams of hot water.

To relax the constriction, and restore equal circulation throughout the body, the fever powders may be used, joined with diaphoretic drinks. Anodynes may be given if necessary.

COLDS AND COUGHS.

Colds are the effect of an obstructed perspiration. Every cold is a kind of fever, differing only in degree from some of those that have already been treated of. It is impossible, with the greatest circumspection, to defend ourselves at all times against colds. If the human body and the atmospheric air, could be kept constantly at a uniform temperature, catching cold would be impossible; but as both are subject to sudden changes, the perspiration must also be liable to many changes and checks.

When oppression of the chest, a stuffing of the nose, unusual weariness,

pain in the head, &c., give ground to believe that the person has caught cold, he ought immediately to lessen his diet, at least the usual quantity of solid food, and abstain from all strong liquors. The patient ought to get into bed, and drink warm teas, till a sweat is created. His drink may be boiled butter-milk, balm, hoarhound, boneset, pennyroyal teas, &c. A cold is easily cured if people will only confine themselves, and make a business of it; every one knows how to cure a cold, if he will only apply himself to it. But they are often neglected, and suffered to run, till by repeated additions, the patient finds himself on the broad road to consumption before he is aware of any thing serious.

COUGH.—A cough is generally the effect of cold. It consists in a convulsive motion of the diaphragm, generally owing to an irritation of the windpipe. When the cough is obstinate, there is always reason to fear the consequences, as this shows a weak state of the lungs, and is often the forerunner of consumption.

When a cough comes from a cold, a table spoonful of Indian turnip, pulverised, and mixed in half a tea cup of honey, and a tea spoonful taken four or five times a day, will generally cure in two or three days. Or, the green Indian turnip, one part, and green comfrey, three parts, both bruised very fine into a jelly, and mixed, and a proper quantity of honey or sugar added, may be used. This will rarely fail.

In a cough, diaphoretics, castor oil, and mucilages, stimulants and expectorants, and sometimes opiates, are proper. The practitioner can select from among these classes, enough that are suitable without having an enumeration of them here, which would occupy too much space. Many good preparations will be found among the recipes, from which he can select. The cough drops should never be omitted.

In obstinate coughs, proceeding from a flux of humors upon the lungs, it will be necessary, besides expectorating medicines, to have recourse to cleansing and strengthening medicines. Balsam of life, is very appropriate; as also balm of gilead buds; or balsam copaiva, twenty drops twice a day, on sugar. Or, two ounces of garlic infused in a bottle of Madeira wine, a glass full night and morning. These are all good.

Preparations may also be made from skunk cabbage, elecampane, hoarhound, boneset, burdock, spikenard, pleurisy root, bloodroot, sumac, Indian hemp, lobelia, slippery elm, liquorice, flax seed, &c.

A plaster of Burgundy pitch, about the size of a nutmeg, spread on a soft piece of leather the size of the hand, and laid between the shoulder-blades, will wonderfully relieve a cough; it may be taken off and wiped every three or four days, and ought to be renewed once a fortnight. This is indeed a cheap and simple medicine, and apt to be despised; but we will venture to affirm that the whole materia medica does not afford an application more efficacious in every kind of cough.

Hoarseness is caused by the great effusion of acid lymph upon the windpipe and organs of speech, so as to obstruct the passage of the air in the formation of the sound. This is only a degree of cough, and requires nearly the same treatment. Skunk cabbage root, or ball, pulverised and mixed with honey, a tea spoonful four or five times a day, is excellent; or wheat bran, boiled with raisins; or sweet oil, half an ounce at a dose; or, half a pint of new milk, with a gill of sweet oil, warmed and drank; or vinegar and water, with butter dissolved in it, and drank on going to bed, are all very good.

When a cough is a symptom of some other malady, it is vain to attempt to remove it, without first curing the disease from whence it proceeds. Thus, it sometimes proceeds from foulness and debility of the stomach, requiring cleansing and strengthening of that organ, by gentle emetics and bitter purgatives, together with alkalies.

When a cough and raising of matter proceeds from an ulceration in the lungs, or from any collection or concentration of matter or humors in the chest, it must not be checked till the *cause* is removed. This cough is as necessary as the pump of a ship is to throw out the bilge water that collects in the hold. The only proper way to alleviate this, is to use means to *prevent the collection* of this matter in the chest, by restoring the general health and tone of the system. When this is done, the cough dies of its own accord.

Women, during the last stage of pregnancy, are often greatly afflicted with a cough, which is generally relieved by keeping the body gently open. A cough is often a symptom or forerunner of other diseases, as the gout, measles, &c.

WHOOPIING COUGH.

This cough seldom affects adults, but often proves fatal to children. It is convulsive and is named from its peculiar whoop-like sound. It is infectious.

Whatever impairs the function of digestion, obstructs the perspiration, or relaxes the solids, disposes to this disease; consequently, its cure must depend upon cleansing and strengthening the stomach, bracing the solids, and at the same time, promoting perspiration and the different secretions.

The diet must be light, as chicken broth, and light spoon meats, panada, &c. The drink may be hyssop, or pennyroyal tea, sweetened with honey or sugar candy, small wine whey, or, if the patient be weak, he may sometimes be allowed a little wine and loaf sugar.

One of the most effectual remedies in the whooping cough is change of air. When the disease proves violent, and the patient is in danger of being suffocated by the cough, he ought to take warm, loosening emetics, as the lobelia or bloodroot. These may be repeated if necessary. If the breathing is much choked, five or six drops of rattle-snake's oil on sugar, may be given to loosen the phlegm. Emetics not only cleanse the stomach, which in this disease is generally loaded with tough phlegm, but they likewise promote the perspiration and other secretions, and ought, therefore, to be repeated according to the obstinancy of the disease. They should not, however, be strong; gentle emetics, frequently repeated, are both less dangerous, and more beneficial than strong ones. After vomiting, alkalies may be given.

The body ought to be kept gently open. For this purpose, rhubarb in some of its preparations, or senna, &c., may be given.

Stimulating or anodyne fomentations frequently afford relief, and may be rubbed along the spine, breast bone, or lower region of the stomach. Young children should be laid with their heads and shoulders raised, and be raised up when they cough, to guard against suffocation. The feet should be frequently bathed in luke-warm water, and a Burgundy pitch plaster kept constantly between the shoulders. When the disease proves very violent, it will be necessary, instead of it, to apply a blistering plaster.

On recovery, when the disease has been protracted and weakening, tonics, and antispasmodics may be administered.

HICCOUGH, OR HICCUP.

The Hiccup is a convulsive motion of the stomach and midriff.

THE CAUSE.—Acrid irritating matter in the stomach, a morbid sensibility from disease, drunkenness, too great fullness, or the contrary. The diaphragm is affected by sympathy.

THE PROGNOSTICS.—Sneezing generally removes it; or a sudden fright, or fixing the eyes intently on some object; or any thing that attracts the mind from it. Proceeding from wounds, profuse evacuations, in asthmas, or at the close of a malignant fever, it is always a dangerous and often a deadly symptom.

Essence of peppermint on sugar will often relieve; alkalies, as salætatus, with rhubarb; the cleavers infusion cools and allays it. Antispasmodics, as valerian, lady slipper, castor, musk, &c., are proper. Emetics and cathartics are sometimes indicated if the stomach is foul.

PULMONARY CONSUMPTION.

A consumption is a wasting or decay of the whole body from an ulceration of, or tubercles in the lungs.

At the present day consumptions, or *reputed* consumptions, make up about one fifth of the bills of mortality in the principal cities of the United States. In the country, it, perhaps, falls a little short of that proportion. One hundred years ago, they formed less than one tenth.

Young persons, between the age of fifteen and thirty, of a slender make, long neck, high shoulders and flat chests, are most liable to this disease.

CAUSES.—It has already been observed that an inflammation of the lungs often ends in tubercular disease of these organs.

Other diseases, by vitiating the habits, may likewise occasion consumptions: as the scurvy, the scrofula, or king's evil, the venereal disease, the asthma, small pox, measles, &c.

Consumption may also proceed from an originally small size and limited capacity of the lungs, or from tightness of the chest, whereby a sufficiency of vital heat is not generated for its free diffusion throughout the system. In consequence, cold and decay follow. From this cause consumption may be hereditary.

This disease, when really seated, is seldom or never cured. We shall endeavor, therefore, the more particularly to point out its causes, in order that they may be avoided. They are:

Confined or unwholesome air: when this fluid is impregnated with the fumes of metals or minerals, it proves extremely hurtful to the lungs, and often corrodes the tender vessels of that necessary organ.

Violent passions, exertions, or affections of the mind, as grief, disappointment, anxiety, or close application to the study of abstruse arts or sciences.

Great evacuations, as sweating, diarrhœas, diabetes, excessive venery, the fluor albus, over discharge of the menstrual flux, giving suck too long, &c.

The sudden stoppage of customary evacuations, as bleeding piles, bleeding at the nose, the menses, issues, ulcers, or eruptions of any kind.

Making a sudden transition from a hot to a cold climate, change of apparel, or whatever greatly lessens perspiration.

Frequent and excessive debaucheries. Late watching and drinking strong liquors, which generally go together, can hardly fail to destroy the lungs.

Consumptions are likewise caught by sleeping with the diseased; for which reason this should be carefully avoided.

Those artificers who sit much and are constantly leaning forward, or pressing on the chest and abdomen, as cutlers, tailors, shoemakers, seamstresses, &c., often die of consumptions. They likewise prove fatal to all who have occasion to make frequent and violent exertions of the lungs.

More consumptive patients date the beginning of their disorders from wet feet, damp beds, night air, wet clothes, or catching cold after the body has been heated, than from all other causes.

We shall only add, that this disease is often owing to an hereditary taint, or a scrofulous habit; in which case, it is generally incurable.

Consumptions are also frequently produced, of late years, by the lavish use which is made of mercury, and of quinine adulterated with arsenic.

SYMPTOMS.—The disease generally begins with a dry cough, which often continues for some months. If a disposition to vomit after eating be excited by it, there is still greater reason to fear an approaching consumption. The patient complains of a more than usual degree of heat, a pain or oppression at the chest, especially after motion: his spittle is of a saltish taste, and sometimes mixed with blood. He is apt to be sad; his appetite is bad, and his thirst is great. There is generally a quick, soft, small pulse; though sometimes the pulse is pretty full and rather hard. These are common symptoms of a beginning consumption.

Afterwards the patient begins to spit a greenish, white or bloody matter. His body is extenuated by the hectic fever and clammy sweats, which mutually succeed each other. A looseness, and an excessive discharge of urine are often troublesome symptoms at this time, and greatly weaken the patient. There is a burning heat in the palms of the hands, and the face generally flushes after eating; the fingers become remarkably small, the nails are bent inward, and the hair falls off.

At last the swelling of the feet and legs, the total loss of strength, the sinking of the eyes, the difficulty of swallowing, and the coldness of the extremities, show the immediate approach of death, which, however, the patient seldom believes to be so near. Such is the usual progress of this fatal disease, which if not early checked, commonly sets all medicine at defiance.

[There are few if any diseases which are as difficult to be understood by the ordinary practitioner as those which occur within the cavity of the chest, situated, as they are, within the bony walls of this inclosure and hidden from the view of the practitioner; but the difficulty of interpreting their character and condition, arising from the obscurity of their situation, is, in a great degree overcome by the application of the principles of Auscultation and Percussion. The object I now have in view is to describe some of the sounds of the chest, as they occur to the auscultator and percusser, and thereby to aid the practitioner in forming a correct opinion of all diseases occurring in this important region, and which would otherwise be left in doubt and obscurity.]

Percussion, means striking the chest to obtain its sound. The chest of a person in health yields, when struck lightly with the ends of the fingers, a hollow and somewhat drum-like sound. The sound thus produced is occasioned by the air contained in the spongy tissue, or cells of the lungs; this sound is rendered dull in proportion to the thickness of the parts through which it is transmitted; as in persons who are very fleshy. In order to obtain the correct sounds when examining the anterior part of the chest, the patient should stand or sit in an erect position, putting his arms behind him, and let his head be thrown a little back; and *vice versa*, when examining the posterior part of the chest.

There are three modes of obtaining the sounds of the chest. First, by laying the fore-finger of the left hand over the point to be examined, (the finger should lay crosswise, and not lengthwise of the ribs,) and striking it with the ends of two or three fingers of the right hand; the blow should be made with a quick and sudden jerk; in this way correct and distinct sounds are obtained. Secondly, by applying the ear to the patient's chest, (Auscultation, which means, the act of listening,) and, Thirdly, by the use of the stethoscope, a hollow wooden tube, one end of which is applied to the part to be examined, and the other end to your ear. This instrument may be

made of any kind of straight grained wood, with a small smooth hole passing lengthwise through its centre; this hole should flare out a little at one end, somewhat resembling the shape of a funnel; the larger extremity is to be applied to the patient's chest. Thus I have given the three modes which are employed in the examination of the chest.

A few words on the sounds themselves. We have, first, the respiratory murmur. By applying the ear or stethoscope over a healthy lung, the noise occasioned by the air passing through the bronchial tubes and air-cells of the lungs is heard. When this respiratory murmur can be clearly and distinctly heard, there is no occasion for apprehending disease.

Secondly; we have the flat or dull sound. If on percussion, a flat sound is obtained, (as though you were striking upon your thigh,) you have reason to fear that some change has taken place in the function of the lung. A common cold will produce this effect to a certain extent. This flat sound likewise shows the existence of inflammation. Any thing, indeed, which suspends the action of the lungs occasions this flat sound.

Thirdly, we have the cavernous sound. If a sound resembling the passage of air through a hollow place or cavity, as though it was rushing through a small hole into a larger one, is heard, you may be certain of the existence of a cavity in the diseased lung. This sound is called *Rhonchus Cavernosus*, or cavernous sound. If you hear a bubbling sound, resembling that occasioned by air passing through water, it indicates the presence of a cavity containing fluid; and if the patient have the other signs of tubercular consumption, you may feel well assured of there being softened tubercles in the lungs. The matter of these softened tubercles generally finds its way into the bronchial tubes, whence it is discharged by coughing and expectoration. When you apply the stethoscope over a cavity and the patient speaks, the sound of his voice appears to issue directly from the cavity itself.

It is necessary for you to remember when making examinations of the chests of patients that when you are percussing over the region of the heart and liver, you will always elicit a dull sound; if you do not bear this fact in mind you will be led to a wrong conclusion, and infer that the lungs are diseased at these points.

The formation of tubercles in the lungs often commences at a very early period of life, and when first seen are arranged in clusters in the superior lobe of one or both lungs. They are little hard greyish knots, situated in the spongy structure of the lungs. I have seen them so hard that they could not be broken down between the fingers. They increase in size as the disease advances, and in time suppurate. I have seen on examining the lungs of persons who have died of this wide spread and fatal disease, these tubercular formations from the size of a small grain of sand to that of a large walnut which had not yet commenced softening. A number of them frequently breaks into one, on softening down, and form a large cavity. I have seen the lungs of persons after death that were in a state of perfect decomposition.

It is necessary to the acquirement of a correct knowledge of the sounds of the chest, that the beginner should practice both auscultation and percussion every opportunity that occurs; commencing on the healthy, he will, by making careful examinations of their chests, soon acquire an ability to detect any changes which occur in the lungs from disease. The medical man often, by venturing to give an opinion on the termination of the diseases of the chest, stakes his reputation as a physician; how important, then, it is, even for his own sake, that he should neglect nothing that will aid him, in any way, in the formation of a correct opinion.

There are numerous individuals in this community who pretend to possess extraordinary abilities in the cure of this fatal disease. They are in the habit of publishing extensive advertisements setting forth their arrogant pre-

tensions, and of travelling about the country lecturing on consumption; they unhesitatingly assert that, in *their hands*, tubercular consumption is as easily cured as any other disease! I would, as I consider it a duty I owe the community, warn all to beware, and not trust too much in the hands of these pretended consumption curers. They are dangerous fellows. I have known them to obtain enormous fees from their patients before they would commence their work of destruction, and, after the disease had destroyed the person's life, manage to charge its fatal issue upon the patient himself! One of these ignorant fellows once requested me to show him the lungs of a person, as he had never in his life seen them. This same modest gentleman, so egregiously ignorant of the anatomy of this important organ, had been travelling through the country and lecturing on consumption, boldly asserting that *he* could cure any form of this disease, even when the lungs themselves are in a state of ulceration. I would repeat, beware of these stupidly ignorant boasters, who know not the subject they are talking about. True consumption, or softened tubercles in the lungs, is seldom, if ever, cured. I have taken great pains, both before and after death, in the investigation of the nature of this disease, and feel perfectly warranted in making the above statement. In numerous instances, persons will have many of the symptoms of consumption, but will not have this disease; this fact has been the occasion of much doubt and speculation.]

REGIMEN.—On the first appearance of consumption, if the patient live in a large town, or any place where the air is confined, he ought immediately to quit it, and make choice of a situation in the country, where the air is pure and free. Here he must not remain inactive, but take as much exercise daily as he can bear.

The best method of taking exercise, is to ride on horseback, as this gives the body a great deal of motion without much fatigue. Such as cannot bear this kind of exercise, must make use of a carriage. The patient ought always to finish his ride in the morning, or at least before dinner; otherwise it might oftener do harm than good.

Those who have strength and courage to undertake a pretty long sea voyage, may expect great advantage from it. This, to my knowledge, has frequently cured a consumption, after the patient was, to all appearance, far advanced in that disease, and when medicine had proved ineffectual. Hence, it is reasonable to conclude, that if a voyage were taken in time, it would seldom fail to perform a cure.

Such as try this method of cure, ought to carry as much fresh provisions along with them as will serve for the whole time they are at sea. As milk cannot be usually obtained at sea, fruits, chicken broth, &c., may be substituted. It is scarcely necessary to add, that such voyages should be undertaken, if possible, in the mildest season, and towards a warmer climate. Those who have not courage for a long voyage, may travel into a more southern climate, and if they find the air agrees with them, they should continue there, at least, till their health be confirmed.

Next to proper air and exercise, we would recommend a due attention to diet. The patient should eat solid nourishing food, of easy digestion, and his drink be of a soft cooling nature. All the diet ought to be calculated to lessen the acrimony of the humors, and to nourish and support the patient. For this purpose milk is excellent. Asses' milk is commonly reckoned preferable to any other. To produce beneficial effects, it ought to make a considerable part of the patient's diet, and be persisted in some time. It should be drank, if possible, in its natural warmth, and by a grown person in the quantity of a half a pint at a time, and three or four times a day.

But as asses' milk is difficult to be obtained in this country, other milk may be substituted. Cow's milk is most readily obtained, but is not so di-

gestible as most other milk. If it should prove heavy on the stomach, a small quantity of brandy or rum, with a little sugar, may be added, which will render it both light and nourishing.

Some extraordinary cures have been performed by women's milk. Could this be obtained in sufficient quantity, it would undoubtedly be preferable to any other.

Some prefer buttermilk to any other, and it is indeed a very valuable medicine, if the stomach can bear it. It does not agree with every person at first; and it is therefore often laid aside without sufficient trial. It should at first be taken sparingly, and the quantity gradually increased until it becomes almost the sole food. I never knew it succeed unless where the patient almost lived upon it.

We do not, however, advise those who have been accustomed to animal food and strong liquors, to leave them off all at once. This might be dangerous. It will be necessary for such to eat a little once a day, of the flesh of some young animal, or rather to use the broth made of chickens, veal, lamb, or such like. They ought also to drink a little wine diluted with twice or thrice its quantity of water, and make it gradually weaker till they can leave it off altogether.

These must be used only as preparatives to a diet consisting chiefly of shell fish, of milk, and vegetables, which the sooner the patient can be brought to bear the better. Rice and milk, or barley and milk, boiled with a little sugar, is very proper food. Ripe fruits, roasted, baked, or boiled, are likewise proper.

Wholesome air, proper exercise, and a diet consisting chiefly of these and other vegetables, with milk, is the only course that can be depended upon in the beginning of consumption. If the patient has strength and sufficient resolution to persist in this course, he will seldom be disappointed of a cure.

In populous towns, where consumptions are very common, I have frequently seen consumptive patients, who had been sent into the country, with orders to ride and live upon milk and vegetables, return in a few months quite plump, and free from any complaint. This, indeed, was not always the case, especially when the disease was hereditary or far advanced; but it was the only method in which success was to be expected, and when it failed, medicine seldom succeeded.

If the patient's strength and spirits flag, he must be supported by strong broths, jellies, and such like. Some recommend shell fish in this disease, and with some reason, as they are both nourishing and restorative. All the food and drink ought, however, to be taken in small quantities, lest an overcharge of fresh chyle should oppress the lungs, and too much accelerate the circulation of the blood.

The patient's mind ought to be kept as easy and cheerful as possible. Consumptions are often occasioned and always aggravated by a melancholy cast of mind; for which reason, music, cheerful company, and every thing that inspires mirth, are highly beneficial. The patient ought seldom to be left alone, as brooding over his calamities is sure to render him worse.

MEDICINE.—Though the cure of this disease depends chiefly upon regimen and the patient's own endeavors, yet I shall mention such things as I have found beneficial in assisting nature to regain her wonted strength.

Expectoration may be promoted by the following medicines: a mixture of equal parts of lemon juice, fine honey, and syrup of poppies. Four ounces of each of these may be simmered together in a pan over a gentle fire, and a table spoonful of it taken at any time when the cough is troublesome.

For warming and strengthening the blood, and keeping up a free circulation in the extremities, I make use of the tonic tincture. This wonderfully

strengthens the patient, and raises the spirits. Also, the iron and myrrh pill, from four to six a day.

Acids seem to have peculiarly good effects in this disease; they both tend to quench the patient's thirst and cool the blood. The vegetable acids, as apples, oranges, lemons, and elixir vitriol, appear to be most proper. I have known patients suck the juice of several lemons every day with manifest advantage, and would for this reason recommend acid vegetables to be taken in as great quantity as the stomach will bear.

For the patient's drink, we would recommend demulcent liquids; infusions of bitter plants, as centaury, camomile flowers, or water trefoil. These infusions may be drank at pleasure. They strengthen the stomach, promote digestion, and at the same time answer all the purposes of dilution, and quench thirst much better than things that are sweet and luscious. But if the patient spit blood, he ought to use such drinks as are healing, and if occasion requires, astringents. For this last purpose, the herb sweet bugle, in decoction, is of superior efficacy.

There are many other mucilaginous plants and seeds of a healing nature, from which decoctions or infusions may be prepared with the same intention; as comfrey, quince seed, coltsfoot, linseed, sarsaparilla, &c. It is not necessary to mention the different ways in which these may be prepared. Simple infusion or boiling is all that is necessary, and the dose may be at discretion.

The confection of roses is here peculiarly proper. I would, indeed, recommend it in all instances where there is any considerable discharge of blood from the lungs.

When a disposition to consumption arises in consequence of any enfeebling evacuation, such as a considerable abscess, fluor albus, or the like, without any inflammation of the lungs having yet taken place, tonics will be serviceable. After inflammation has come on, or ulceration has commenced, it would not fail to prove injurious, by increasing the cough, with the tightness of the chest and oppressive breathing.

As detergents, balsamics of different kinds have been much used in the ulcerated stage. Balsam of fir, or the composition "balsam of life" may be tried. Myrrh, however, is the medicine employed with the greatest success in those cases of hectic fever which are unattended with any great degree of heat or thirst, and which do not show manifest signs of inflammation. If at any time it should be thought too heating, the spiritous water may be omitted, as the solution may be made without it; although it is doubted whether it will agree so well with the stomach in general. A proper dose (10 to 15 drops) of the tincture of foxglove, may be added to each of the draughts, and be given together.

If the tubercles should discharge themselves into the cavity of the chest, between the pleura and the lungs, there is no way of getting the matter out but by an incision, as has already been observed. This operation must always be performed by a surgeon. We shall only add that it is not so dreadful as people generally imagine, and that it is the only chance the patient has for his life.

With regard to the remedies usually employed in the treatment of consumption, foxglove, with the sulphate of iron, myrrh, and other tonics, may be most proper in those cases which arise from scrofula. Much benefit may be derived from fumigations with a mixture of tar and beeswax.

A Nervous Consumption or atrophy, is a wasting or decay of the whole body, without any considerable degree of fever, cough, or difficulty of breathing. It is attended with indigestion, weakness, want of appetite, &c.

Those who are of a fretful temper, who indulge in spirituous liquors, or who breathe unwholesome air, are most liable to this disease.

We would recommend, chiefly, for the cure of nervous consumption, a

light and nourishing diet, plenty of exercise in a free open air, and the use of such bitters as brace and strengthen the stomach; as gentian root, canomile, hoarhound, colombo, &c. These may be infused in water or wine, and a glass of it drank frequently.

It will greatly assist the digestion, and promote the cure of this disease, to take twice a day, twenty or thirty drops of the elixir of vitriol in a glass of wine or water. The chalybeate wine is likewise an excellent medicine in this case; it strengthens the solids, and powerfully assists nature in the formation of good blood.

What is called a Symptomatic Consumption, cannot be cured without first removing the disease by which it is occasioned.

Thus, when a consumption proceeds from the scrofula, the scurvy, asthma, the venereal disease, &c., a due attention must be paid to the malady from whence it arises, and the regimen and medicine directed accordingly.

When excessive evacuations of any kind occasion a consumption, they must not only be restrained, but the patients strength must be restored by gentle exercise, nourishing diet, and generous cordials. Young and delicate mothers often fall into consumptions by giving suck too long. As soon as they perceive that their strength and appetite begin to fail they ought immediately to wean the child, or provide another nurse, otherwise they cannot expect a cure.

Before we quit this subject, we would earnestly recommend it to all, as they wish to avoid consumptions, to take as much out-door exercise as they can, to avoid unwholesome air, and to study sobriety. Consumptions owe their present increase not a little to the fashion of sitting up late, eating hot suppers, and spending every evening over a bowl of punch or other strong liquors. These liquors not only hurt the digestion and spoil the appetite, but heat and inflame the blood and set the whole constitution on fire.

In tracing the various causes of consumption, I entered into minute details, to put people more upon their guard, as the disease, when deeply seated, seldom admits of a cure. Such being the case, the utmost care should be exerted to avoid them. The best general caution I can give is to guard against catching cold, the fruitful mother of consumptions and of many other maladies: how this is to be done, will be more fully explained when I come to treat of colds and coughs, the bane of the young, gay, and thoughtless part of the community, who have no fear of any ill until it overtakes them, when it is generally too late to prevent the fatal consequences.

ASTHMA.

Asthma is a spasmodic disease of the lungs, coming on by paroxysms. Persons in the decline of life are most liable to it. It is distinguished into the moist and dry; the former is attended with expectoration, or spitting; but in the latter the patient seldom spits, unless sometimes a little tough phlegm, by mere force of coughing. Asthma is either periodical or continued.

The cause of continued asthma may be a compression of the lungs by a serum or dropsy in the chest, or by whatever compresses the lungs, impedes the circulation of the blood through them, or prevents their being duly expanded by the air.

The cause of periodical asthma is a compression of the vessels and air cells of the lungs; also exposure to cold easterly winds, sudden changes of air, foggy weather, &c. The immediate cause of the asthma, is a spasmodic constriction or irritation of the organs of respiration.

SYMPTOMS.—An asthma is known by a quick laborious breathing, which

is generally performed with a kind of wheezing noise. Sometimes the difficulty of breathing is so great that the patient is obliged to keep in an erect posture, night as well as day, otherwise he is in danger of being suffocated. A fit of the asthma generally comes on after exposure to cold, easterly winds, damps, fogs, wet feet, eating indigestible food, &c.

The paroxysm is generally ushered in with listlessness, want of sleep, hoarseness, a cough, belching of wind, heaviness about the chest, and difficulty of breathing. To these succeed fever, heat, pain in the head, sickness, nausea, great oppression of the chest, palpitation of the heart, a weak, and sometimes intermitting pulse, an involuntary flow of tears, bilious vomitings, &c. All these symptoms grow worse towards night; the patient is easier when up than in bed, and is very desirous of cool air.

After some nights passed away in this manner, the fits at length moderate, and suffer more considerable remissions, particularly when they are attended with a copious expectoration in the morning, and when this continues from time to time throughout the day; and the disease going off at last, the patient enjoys his usual rest at night without further disturbance. In some severe cases, the patient is obliged to abstain from sleeping on a bed altogether.

REGIMEN.—The food ought to be easy of digestion, solid, and nourishing; all things which occasion the generation of wind in the stomach are to be avoided. The body should be kept warm, and particularly the feet, which should be kept dry and perspiration promoted. Nothing is of so great importance in the asthma as pure and moderately warm air. Asthmatic people can seldom bear either the close heavy air of a large town, or the sharp keen atmosphere of a bleak hilly country; a medium, therefore, between these is to be chosen.

Exercise is likewise of very great importance in the asthma, as it promotes the digestion, greatly assists in the preparation of the blood, and helps to prevent the accumulation of serum in the chest. The blood of asthmatic persons is seldom duly prepared, lacking oxygen, owing to the proper action of the lungs being impaired.

MEDICINE.—During the paroxysm the body is generally bound; a purging clyster ought, therefore, to be administered, and if there be occasion, repeat it. The patient's feet and legs ought to be immersed in warm water, and afterwards rubbed with a warm hand or dry cloth. If there be a violent spasm about the chest or stomach, warm fomentations, or bladders filled with warm milk and water, may be applied to the part affected, and warm cataplasms to the soles of the feet. The patient must drink freely of diluting liquors, and may take a tea spoonful of the tincture of castor and saffron mixed together in a cup of valerian tea, twice or thrice a day. Other anti-spasmodics, as foxglove, stramonium tincture, lady slipper, skunk cabbage, &c., may be given. Emetics must not be neglected, as they often snatch the patient, as it were, from the jaws of death; among these, lobelia is peculiarly serviceable, cutting up the phlegm, and giving instant relief. Bloodroot is also good.

In the moist asthma, such things as promote expectoration ought to be used. Mucilaginous, anti-spasmodic, warming and stimulating medicines, are proper.

A combination of foxglove and opium has proved highly advantageous in spasmodic asthma, when given in the dose of half a grain of each every four or five hours. In the moist asthma, wild turnip with foxglove might be more advisable.

For the convulsive nervous asthma, antispasmodics and tonics are the most proper medicines. The green drops, in lime water, in proportion of a wine glass to a bottle, and a table spoonful taken three times a day, will rarely fail to relieve. Bitter infusions, and preparations of iron, without acid; in short,

every thing that braces the nerves or takes off the spasm, may be of use in a nervous asthma. The skunk cabbage is a very appropriate remedy in this disease.

In addition to tonics, exercise, either in swinging, sailing, riding in a carriage, or on horseback, but particularly the latter, together with a change of air, will be beneficial to asthmatics.

In the asthma, arising from a retrocession of the gout, there are usually intermissions, and other irregularities of the pulse, great anxiety of the countenance, with a bluish tinge thereon, large doses of saffron, opium, camphor, or fever root, are the medicines most likely to afford relief. Sometimes it is necessary to apply a blister to the chest, assisted with placing the feet in warm water, &c. A very strong infusion of roasted coffee is said to give ease in an asthmatic paroxysm.

The following tincture I can recommend as excellent for the asthma :

Take half a pound of quick lime, slack it by turning on two quarts of hot water, and while it is slacking and boiling stir in two spoonsful of tar, and stir them well together, and let it stand and settle. Take half a pound of wild turnip, half a pound of milk weed roots, fresh, and a small handful of lobelia ; bruise them and infuse in two quarts of wine ; place the whole in a sand heat twenty-four hours, then press and strain, and add to it the lime water, and bottle it for use. Dose, a wine glass three times a day. This is also good in coughs, consumptions, hysterics, cramps, spasms, &c.

[I have often found my Cough Drops of great service in asthma, and can, with confidence, recommend them to the use of others. They generally afford immediate and the most astonishing relief. The dose should be increased to meet the necessities of each case. I have seen blood-letting produce immediate and permanent relief.]

APOPLEXY.

An apoplexy is a sudden abolition of the external and internal senses, and of all voluntary motion, with sometimes a full pulse and large respiration. Though this disease proves often fatal, yet it may sometimes be removed by proper care. It chiefly attacks sedentary persons of gross habit who use rich and plentiful diet, and indulge in strong liquors. People in the decline of life are most subject to apoplexy.

CAUSES.—The immediate cause of an apoplexy, is a compression of the brain, occasioned by an excess of blood, or a collection of watery humors. The former is called a sanguine, and the latter a serous apoplexy. It may be occasioned by any thing that increases the circulation towards the brain or prevents the return of the blood from the head : as intense study, violent passions, wearing any thing too tight about the neck ; a rich and luxurious diet ; suppression of urine ; suffering the blood to cool suddenly after having been greatly heated ; excessive use of spiceries, or high seasoned food ; excess of venery ; the sudden striking in of any eruption, or the stoppage of any customary evacuation ; bruises on the head, &c.

Among the predisposing causes may be reckoned, a large head, thick neck, corpulence, spasmodic contraction of the vessels, bony protuberances within the skull, frequent drunkenness, extravasated blood, mercurial vapors, &c.

SYMPTOMS.—The usual forerunners of an apoplexy are, giddiness, pain and swimming of the head ; loss of memory, drowsiness, noise in the ears, night-mare, tears and laborious breathing. These symptoms denote an approaching fit, which should be averted if possible by bleeding, and opening medicines.

In the sanguine apoplexy, if the patient does not die suddenly, the countenance appears florid, the face is swelled and puffed up, and the blood-vessels about the neck and temples are swollen; the pulse beats strong; the eyes are prominent and fixed; snorings; involuntary evacuation of the excrements, or urine.

PROGNOSIS.—When breathing totally ceases for some time it is always fatal. If the pulse is weak, respiration difficult, the patient old, or has been seized before in the same manner, loud snoring, cold sweats, frothing at the mouth, these are all symptoms of a fatal tendency. An apoplexy often terminates in a palsy. A strong pulse is a sign of recovery; if succeeding blood-letting the patient will undoubtedly do well.

In this species of apoplexy, every method must be taken to lessen the force of the circulation towards the head. The patient should be kept perfectly easy and cool; his head raised pretty high, and his feet suffered to hang down. His clothes ought to be loosened, particularly about his neck. As soon as the patient is placed in a proper posture, he should be bled freely in the neck or arm. Hippocrates, with great justice, asserts, that blood-letting always kills or cures in apoplexy; the reason is evident, because it is almost always owing to too little blood, causing an unequal circulation. When plethoric, only, therefore, we should bleed.

The proper medicines to be used are sneezing snuffs; laxative clysters, with a large spoonful of common salt in it; emetics, as lobelia, which is very relaxing; as also the fever powders; blistering plasters between the shoulders and to the calves of the legs; purgatives; cooling applications to the head, as the anodyne wash, and warm fomentations to the feet and legs. As soon as the patient is able to swallow, he should drink freely of some diluting liquor, as pennyroyal, &c.

In the serous apoplexy, the symptoms are nearly the same, only the pulse is not so strong, the countenance is less florid, and the breathing easier: bleeding is seldom proper here; and it is too generally performed in fits of all sorts, though there are very few instances in which they do not originate from a laxity of fibres and deficiency of blood. Those who are so busy with the lancet ought to be reminded that there is yet no repeal of the sixth commandment. Blistering plasters may be applied, and clysters given, as before directed. Emetics and cathartics are here likewise necessary, and the patient may drink strong balm tea, or brooklime, to produce relaxation and sweat. Tobacco smoke, or sneezing powders, may be blown up the nose. The patient should be rubbed with warm flannel, or bathed with spirits. A plentiful perspiration kept up for a considerable time, has often carried off a serous apoplexy. The clysters may be tinctured with tobacco.

Out of the fit, stimulating and nervous medicines will be proper to quicken the action of the blood, and throw off the superabundance of serum; such as valerian, ginger, pleurisy root, angelica, galangal, &c. Also, occasionally a purgative.

Persons of a plethoric or apoplectic make, or those who have been attacked by it, ought to use a very spare and slender diet, avoiding all strong liquors, spiceries, and high-seasoned food. They ought likewise to guard against all violent passions, and avoid the extremes of heat and cold. The hair should be cut close, and the head bathed daily with the anodyne wash, or cold water. The feet should be kept warm, and never suffered to continue long wet. The body must be kept open by laxative food, or clysters. Apoplectic persons ought never to go to rest with a full stomach, or lie with their heads low, or wear any thing too tight about their necks. When a lethargic disposition prevails, medicines that quicken the action of the blood, and dilute it should be used.

EPILEPSY, OR FALLING SICKNESS.

The Epilepsy is a sudden deprivation of all the senses, wherein the patient falls suddenly down, and is affected with violent convulsive motions. Children, especially those who are delicately brought up, are most subject to it. It more frequently attacks men than women. When it attacks children there is reason to hope it may go off about the time of puberty. When it attacks any person after the age of twenty, the cure is more difficult; if the fit continues long, and returns often, the prospect is bad, as also when the patient is seized with fits in his sleep.

It is often symptomatic, arising from acidity of the stomach, worms, teething, &c.

CAUSES.—It is sometimes hereditary, proceeding from a bad shape of the skull. It may likewise proceed from blows, bruises, or wounds on the head: a collection of water, blood or serous humors in the brain; a polypus, tumors, or concretions within the skull; excessive drinking; intense study; excessive venery; worms; teething; suppression of customary evacuations; too great emptiness or repletion; violent passions or affections of the mind, as fear, joy, &c.; all vehement affections of the nervous system; acrid gas, &c.

SYMPTOMS.—An epileptic fit is generally preceded by unusual weariness, pain in the head, dulness, giddiness, noise in the ears, dimness of sight, palpitation of the heart, disturbed sleep, difficulty of breathing, the bowels are inflated with wind, the urine is in great quantity, but thin; the complexion pale, the extremities cold, and the patient often feels, as it were, a stream of cold air ascending to the head.

In the fit the patient makes an unusual noise; his thumbs are drawn in towards the palms of his hands, his eyes are distorted, he froths at the mouth, his extremities are bent or twisted various ways, he starts, foams, often discharges his seed, urine, and feces involuntarily, and is quite destitute of all sense and reason. On recovery, no remembrance of what has passed; stupor; impaired intellects.

PROGNOSTICS.—If hereditary, and a delirium takes place after the fits, it is incurable. From the frequency of the fits arise loss of memory, dulness, foolishness, palsy, apoplexy, and death itself. Involuntary emission, the fits of long duration, and the brain primarily affected, are signs that the cure is difficult. If the cause is in the solids, it is irremovable. If owing to worms, or spasms, proper treatment will cure.

THE CURE.—In the fit, let a loud noise be made in the ear, and apply hartshorn to the nose, or blow up the nostrils a little black pepper or bayberry bark pulverized. Put a spoonful of common salt in the mouth; this alone has often broke the fit. Bathe the wrists and temples with vinegar. If the mouth can be opened, put into it fifteen or twenty drops of oil of amber; or a little castor or musk tincture, peppermint water. Also, as soon as can be taken, give foxglove or stramonium tincture, or the high cranberry or cramp bark in tincture.

As I never saw a plethoric epileptic in my life, I never used the lancet for any one, nor can I think it allowable. When the disease is occasioned by the stoppage of customary evacuations, these, if possible, must be restored, or the humors purified, or a seton substituted. When there is reason to believe that the disease proceeds from worms, proper medicines must be used to kill these vermin. If from teething, keep the body open with clysters, and bathe the feet frequently in warm water, and if the fits are obstinate, put

a blister between the shoulders. The same method is to be followed when the epilepsy proceeds from the small pox, measles, &c.

When it is owing to debility and insufficiency of blood, or too great an irritability of the nervous system, such medicines as brace and strengthen the nerves may be used; as the tonic tincture, valerian, or lady slipper, with colombo, gentian, unicorn root, angelica, ginger, balm of gilead, myrrh, white wood bark, elecampane, &c. Spirits of turpentine, in a large dose, as an ounce, in milk, for a man, has been highly recommended.

In some of the worst cases, in which the fits were long and violent, as well as frequent in the course of the day, electricity has been found to weaken them, and reduce their number very materially in a short space of time.

Emetics are of great efficacy in many cases of epilepsy, and can rarely be given amiss. Alkalies are sometimes required. [I have seen a cold shower bath cure this disease. It should be taken every day or two, and persisted in for some time.]

INFLAMMATION OF THE STOMACH.

This disease is divided into two species, the phlegmonous, or boil like, and the erysipelatous: the former will here be treated of: as the latter arises for the most part towards the termination of other diseases, marking the certain approach of dissolution, and unaccompanied by any burning pain in the stomach.

Inflammations of the stomach are dangerous, and require the most speedy assistance, as they frequently end in suppuration, and sometimes mortification, which is certain death.

CAUSES.—This disease may proceed from any of the causes which produce an inflammatory fever. It may likewise proceed from the acrimony of bile, or from acrid and stimulating substances taken into the stomach; as strong emetics and cathartics, corrosive poisons, and such like. A striking in of the gout may also occasion it, particularly when driven from the extremities by cold applications.

SYMPTOMS.—Fixed pain and burning heat in the stomach; great restlessness and anxiety; a small, quick, and hard pulse; vomiting or nausea; excessive thirst; difficulty of breathing; coldness of the extremities; cold clammy sweats, and sometimes convulsions and fainting fits. The stomach is swelled and often feels hard to the touch. One of the most certain signs of this disease is the sense of pain which the patient feels upon taking any kind of food or drink, especially if it be either too hot or too cold.

When the patient vomits every thing he eats or drinks, is extremely restless, has a hiccup, with an intermitting pulse, and frequent fainting fits, the danger is very great.

CURE.—All acrimonious or heating things are to be avoided; as also wines, spirits, &c. The inclination to vomit may induce the attendant to suppose an emetic is necessary; but it is almost certain death. The food and drink should be light gruel, simple toast water, and such like; clear whey, barley water, or decoctions of emollient, mucilaginous vegetables, as comfrey, slippery elm, linseed, liquorice, marsh-mallows, sarsaparilla, &c.

Let the anodyne wash be freely applied over the region of the stomach, and cloths wet with it and laid on. This must not be neglected.

For a medicinal drink, the cold infusion of cleavers is second to none. Let it be drank freely. Bleeding may sometimes be beneficial. Mild clysters may be given. The feet and legs ought frequently to be bathed in warm

water, and hot bricks or poultices applied to the soles of the feet. The warm bath will be of service.

In this and all other inflammations of the bowels, a large blister applied over the part affected is one of our best remedies.

[Anodynes sometimes have a powerful effect in controlling the inflammation of the stomach, and should not be neglected.]

INFLAMMATION OF THE INTESTINES.

This, like inflammation of the stomach, is of two species. It proceeds from the same cause, and is equally dangerous. It may likewise proceed from costiveness, worms, unripe fruits, stale beer, or sour wine, or wounds and bruises.

The *Symptoms* here are nearly the same as in the foregoing disease, only the pain, if possible, is more acute, and situated lower in the abdomen. The vomiting is likewise more violent, and sometimes even the excrements and clysters are discharged by the mouth. The patient is continually belching up wind, and his urine is obstructed.

While the pain shifts, and the vomiting only at certain intervals, and while the clysters pass downwards, there is ground for hope; but when the clysters and fæces are vomited, the patient weak, with a low fluttering pulse, pale countenance, disagreeable stinking breath, there is great reason to fear a dissolution. Clammy sweats, black fætid stools, with a small intermitting pulse, and total cessation of pain, are signs that a mortification has already begun.

RÈGIMEN.—The same as in inflammation of the stomach.

THE CURE.—Bleeding will generally be beneficial. The anodyne wash should be freely applied over the bowels, cold; and if necessary apply a large blister over the part affected. Warm fomentations and poultices should be applied to the legs and feet; laxatives and emollient clysters, as barley-water or gruel with salt, and softened with sweet oil or fresh butter; these may be administered every two or three hours, or oftener if the patient continues costive.

If the inflammation is severe, and mortification is endangered, a clyster of yeast, with half an ounce of laudanum in it, may be administered, and other antiseptics. Yeast may be given.

Acids have a very good effect in staying vomiting; the patient's drink may therefore be sharpened with lemon juice, elixir vitriol, &c. Mucilaginous substances may be taken, as comfrey, or slippery elm jelly.

If a stool cannot be procured by injections, it will be necessary to immerse the patient in warm water up to the chest. This often succeeds when other means fail. The patient must continue in the water as long as he can easily bear it without fainting, and if one immersion is not sufficient, it may be repeated as soon as the patient's strength and spirits are recruited. It is safer to go frequently into the bath, than to continue long at a time.

It has sometimes happened, after all other means of procuring a stool have been tried to no purpose, this was brought about by immersing the patient's extremities in cold water, or dashing his legs with cold water. This method, when others fail, may deserve a trial.

In desperate cases of obstruction to the passage through the bowels, quicksilver, or duck shot has been given. When there is reason to fear mortification of the intestines, this ought not to be tried: in that case it cannot ease the patient, but only hastens his death.

[I have seen an injection of warm molasses, thrown up with considerable force, give great relief, when many other remedies had failed. This is an injection of value in this disease.]

When there is little inflammation, and clysters do not produce a passage, mild purgatives, as castor oil, senna, &c., may be used.

The *Iliac Passion*, which is generally confounded with inflammation of the intestines, consists in an inversion of the worm-like downward motion of the intestines; consequently nothing can pass downwards. It is caused by the receiving of an upper part of an intestine into a lower, or the contrary, twisting of the intestines, &c.

The treatment necessary is the same as in the above disorder; only large injections of yeast are particularly necessary; clysters of tobacco smoke are also of great service.

If the inflammation proceeds from a hernial rupture, that must be reduced before relief can be obtained.

COLIC.

The colic has a great resemblance to the two preceding diseases, both in its symptoms and method of cure. It is generally attended with costiveness and acute pain in the bowels; and requires diluting diet, evacuations of the stomach and bowels, fomentations, &c.

Colics are variously named, according to their causes, as the *flatulent*, or *wind colic*, the *bilious*, the *hysteric*. As each of these requires a particular method of treatment, we shall point out their most general symptoms with the means to be used for their relief.

The *flatulent*, or wind colic, is generally occasioned by the use of unripe fruits, indigestible and windy food, fomenting liquors, and such like. Delicate people, whose digestive powers are weak and the action of their bowels destroyed by harsh mineral medicines, are most liable to this kind of colic.

The wind colic may either affect the stomach or intestines. It is attended with a painful stretching of the affected part, as though it were bound up. The patient feels a rumbling in the bowels, gulps up wind; the pain is sometimes moveable, shooting from side to side, or into various parts of the chest and abdomen, often catching the patient so suddenly and severely as nearly to stop his breath.

If there is reason to believe the stomach is clogged, an emetic, or purge should first be administered. If the bowels are closed, give clysters. If the pain is great in any particular part, apply the "anodyne wash." Put hot bricks, or other warm applications to the soles of the feet.

In all cases of flatulency, give carminatives and such medicines as relax the system and open the pores; as a combination of pleurisy root, angelica and calamus, infused in spirits, and as much taken as can be drank; or which is an almost certain relief for wind, the pleurisy root alone, in powder, a tea spoonful every twenty minutes till relief is obtained. Any warm carminatives or aromatics, as mints, particularly peppermint, caraway, cloves, pepper, zanthoxylum, lobelia, &c. In addition to these, to relax the system and give ease, particularly in severe cases, give diluting and sweating drinks, with four or five doses of the *fever powders*, one every fifteen minutes in tea, till sufficient are taken. I have often found these to give immediate relief from the most exasperating agonies.

When the pain is removed, the pores gently opened, and the bowels free, the cure of the colic is effected. But the debility of the stomach, which generally is the cause of the colic, should afterwards be remedied by such medicines as strengthen and invigorate the stomach and whole system. Per-

sons who are liable to attacks of this colic should be particularly cautious against taking indigestible food into their stomachs, or overloading them. Goose flesh, boiled eggs, nuts, &c., or whatever they find to be heavy upon their stomachs, must be avoided.

A glass of good peppermint water or brandy, will often relieve the wind colic.

Bleeding is inadmissible, although it is very flattering by often giving immediate relief. The patient is generally already sufficiently feeble, and bleeding only renders a return most certain, and brings on a host of other diseases. The ill effects of bleeding have been very generally felt by people in this country, sufficiently, one would suppose, to prove a warning against it.

The *bilious colic* is attended with very acute pains about the region of the navel. The patient complains of great thirst, and is generally costive. He vomits a hot, bitter and yellow-colored bile, which being discharged, seems to afford some relief, but is quickly followed by the same violent pain as before. The vomiting sometimes increases till it becomes almost continual, and the proper motion of the intestines so far inverted as to produce all the symptoms of an impending iliac passion.

First, it is generally proper to give a vomit, as lobelia, to empty the stomach, and afterwards, if it will stay down, a smart purge, together with clysters of yeast, tinctured with lobelia, or tobacco; or injections of tobacco smoke; or, if it can be procured, new small beer, while it is foaming, should be plentifully injected, and also drank. These means should be persevered in till a downward passage is procured, and irritability and vomiting allayed.

Chicken broth, clear whey, or gruel sharpened with acids, must be drank freely. Mint tea is a very good drink; toast water, tinctured with peppermint is also good. After proper evacuations, the sal æratus and rhubarb powders may be given to destroy the acidity and compose the stomach.

Fomentations, or the anodyne wash, should also be applied to the region of the stomach.

The *hysterical colic* bears a great resemblance to the bilious. It is attended with acute pains about the region of the stomach, vomiting, &c. What the patient vomits in this case is commonly of a greenish color. There is a great sinking of the spirits, with dejection of mind and difficulty of breathing, which are the characteristic symptoms of this disorder. Sometimes it is accompanied with the jaundice, but this generally goes off of its own accord in a few days. It is not dangerous.

In this colic all evacuations, as bleeding, vomiting and purging, do hurt. Every thing that weakens, or sinks the spirits, is to be avoided. If, however, the vomiting should prove violent, warm water may be drank to cleanse the stomach. After the fit, give carminatives, as in flatulent colic, joined with anti-spasmodics, as valerian, lady slipper, castor, &c.

After the stomach is cleansed with warm water, fifteen, twenty, or twenty-five drops of laudanum, in a little cinnamon or peppermint-water should be given. Pennyroyal tea is a very suitable drink.

Painters' Colic. No disease of the bowels is attended with more excruciating pain than this; nor is it soon at an end. It often continues eight or ten days with very little intermission, the body all the while continuing bound in spite of medicine, yet at length yields, and the patient recovers. It generally, however, leaves the patient weak, and often ends in a palsy.

The body is to be kept open by mild purgatives in small doses, and frequently repeated, and their operation must be assisted by soft oily clysters, fomentations, &c. Castor oil is found peculiarly proper in this disease; it may be both mixed with the clysters, and given by the mouth, in doses of one, two, and three table spoonfuls.

The Barbadoes tar is said to be an efficacious medicine in this disease. It

may be taken to the quantity of two drachms three times a day, or oftener if the stomach will bear it. The back may be rubbed with strong spirits.

If the patient remains weak and languid after this disease, he must take exercise on horseback, and use tonics and stimulants.

To avoid this colic those who work in lead, should never go to their labor with an empty stomach, and should never suffer themselves to be costive.

INFLAMMATION OF THE KIDNEYS.

The Kidneys are subject to two kinds of inflammation; one arising from the common causes of inflammation, the other from irritation caused by gravel. It is the former that is here noticed.

CAUSE.—It is occasioned by wounds or bruises of the kidneys; strong diuretic medicines, as spirits of turpentine, tincture of cantharides, &c; violent motion, as hard riding, or walking; or whatever drives the blood too forcibly into the kidneys. It may also proceed from spasms and obstructions produced by gravel and from gonorrhœa.

SYMPTOMS.—A sharp pain in the small of the back about the regions of the kidneys, with some degree of fever, and a stupor or dull pain in the thigh of the affected side. The urine is at first clear, and afterwards of a reddish color; but in the worst kind of the disease it generally continues pale, is passed with difficulty, and in small quantities at a time. The patient feels great uneasiness when he endeavors to walk or sit upright. He lies with more ease on the affected side, and has generally a nausea or vomiting, resembling that which happens in the colic.

CURE.—Every thing of a heating or stimulating nature is to be avoided. The food must be thin and light, as small broths, panada, and the like. Emollient and thin liquors must be plentifully drank, as pumpkin seed tea, decoction of marsh-mallows, with barley, liquorice, whey, or balm tea. The patient, notwithstanding the vomiting, must be constantly sipping small quantities of these or other diluting liquors.

Cloths dipped in the anodyne wash, should be applied over the part affected and renewed as often as they grow dry. Castor oil, with emollient clysters, ought frequently to be administered; and if the latter do not open the body, a little salt, or honey and senna may be added to them.

To cool and allay the inflammation in the kidneys, as well as assist in removing the obstructions in the urinary passage, I depend mostly on the cleavers infusion. Let it be drank freely. The pumpkin seed tea must not be omitted. These are particularly necessary if the inflammation is caused by gravel obstructing the kidneys or ureters. The foxglove, in small doses, is also a good medicine in this case. A few drops of laudanum may now and then be put in the patient's drink.

[Cups should be applied over the region of the kidneys. This should never be neglected when the inflammation is severe. Leeches may also be applied. Nitrate of potash or salt petre should be given in small doses and frequently repeated. Epsom salts should be given as a purge. Bleeding from the arm sometimes has an excellent effect when the inflammation is severe, and powerful means have to be resorted to.]

When the disease is protracted beyond the seventh or eighth day, and the patient complains of a stupor and heaviness of the part, has frequent returns of chilliness, shivering, &c., there is reason to suspect that matter is forming in the kidney, and that an abscess will ensue.

When matter in the urine shows that an ulcer is already formed in the kidney, the patient must be careful to abstain from acrid, sour, and salted

provisions; and to live chiefly upon mild mucilaginous herbs and fruits, together with broths of young animals, barley, pot-herbs, &c.

The *anti-mercurial syrup* would greatly help to cleanse and heal the ulcerations in the kidneys; particularly as this ulceration often proceeds in a great measure from a vitiation of the fluids through the whole system.

INFLAMMATION OF THE BLADDER.

This inflammation proceeds, in a great measure, from the same causes as that of the kidneys. It is known by an acute pain and tension towards the bottom of the abdomen, and difficulty of passing urine, with some degree of fever, a constant inclination to go to stool, and a perpetual desire to make water, &c.

This disease must be treated on the same principle as the preceding. The diet must be light, thin, and of a cooling nature. The lower part of the abdomen should be bathed freely with the "anodyne wash," or fomented with hops, marsh-mallows, &c. If the spasm and obstruction is very obstinate, lay on a large poultice of bruised onions, slightly warmed, over the lower part of the abdomen; this quickly relaxes the parts. At the same time, the cleavers infusion must not be omitted; as well as the decoction or the oil of pumpkin seeds.

A stoppage of urine may proceed from other causes besides an inflammation of the bladder: as a stone in the bladder; a swelling of the womb; excrescences of flesh in the urinary passage, a palsy of the bladder, hysteric affections, &c. Each of these requires a particular treatment, which does not fall under our present consideration. We shall only observe that in all of them, mild and gentle applications are the safest, as strong diuretic medicines of a heating and irritating nature generally increase the danger.

INFLAMMATION OF THE LIVER.

The liver is less subject to inflammation than most of the other viscera, as in it the circulation is slower; but when inflammation does happen, it is with difficulty removed, and often ends in suppuration or scirrhus. This disease is more common in warm climates.

I cannot approve of the prevalent fashion in physic, of christening almost every painful affection within the abdomen, a "*Liver Complaint*." It leads to a wrong treatment. For instance, many, to my knowledge, have been dosed with the *blue pill* for months, or undergone a mercurial salivation, for this "*liver complaint*," when, as I believed, and as afterwards proved to be the case, their whole disease, aside from the destructive effects of the mineral, consisted in mere debility and *flatulency*. No wonder that under such treatment these "*liver complaints*" prove *obstinate and incurable*! Nothing could be given more injurious. Thousands of females in this country, and I might even say in this city, are now groaning under this relentless "*liver complaint*," and continually taking medicine for it, when their real disease is an inflammation, swelling, or bearing down of the womb. This I assert from experience.

CAUSES.—Besides the common causes of inflammation, we may add, excessive fatness, scirrhus of the liver, violent shocks, any thing that suddenly cools the liver after being greatly heated, stones obstructing the course of the bile, strong wines, hot spicy aliment, long continued intermittent fevers, blows, and in five cases out of six, the partial application of cold or wet

when the body is heated or over fatigued with exercise, going from a northern to a southern climate.

SYMPTOMS.—This disease is known by a painful tension of the right side under the false ribs, attended with some degree of fever, a sense of weight, or fulness of the part, difficulty of breathing, loathing of food, great thirst, with a pale or yellowish color of the skin and eyes.

The symptoms here are various, according to the degree of inflammation, or the particular part affected. Sometimes the pain is so inconsiderable that an inflammation is not so much as suspected; but when it happens in the upper or convex part of the liver, the pain is more acute, the pulse quicker, and the patient often troubled with a dry cough, a hiccup, and a pain extending to the shoulder, with difficulty of lying on the left side.

This disease may be distinguished from the pleurisy by the pain being less violent and seated under the false ribs. In warm climates the liver is more apt to be affected, as the secretion of bile is increased and it is liable to become acrid, thereby exciting irritation.

This disease is seldom mortal: [not as much so in northern as in southern climates.] A constant hiccuping, violent fever and excessive thirst, are all bad symptoms. When a scirrhus of the liver is formed, the patient, if he observes a proper regimen, may nevertheless live a number of years tolerably easy; but if he indulge in animal food and strong liquors, or take medicines of an acrid or irritating nature, the scirrhus will be converted into a cancer which will generally prove fatal.

CURE.—The same regimen is to be observed in this as in other inflammatory disorders. Cool diluting liquors must be drank freely. All violent purgatives are to be avoided; the body, however, must be kept gently open. The side affected may be bathed with the anodyne wash, or fomentations of hops, wormwood, tansy, camomile, with vinegar, &c., may be applied. Mild laxative clysters may be frequently administered; and if the pain should, notwithstanding, continue violent, a blistering plaster may be applied over the side affected, or a seton may be inserted.

For cleansing, and for promoting the secretion of urine, the *dandelion* is very efficient. A pound of the green roots, bruised, and boiled to a quart, may be drank in quantity of a gill three times a day, and continued till well. The first doses may create curious or strange sensations, but these are not dangerous, and merely show that it takes effect. It must be recollected, however, that this is applicable to a *real* affection of the liver only. Fox-glove may also be given to promote the secretion of urine.

The *blue flag* may be combined with the dandelion very profitably, for an alterative to the system. I have also used the *anti-mercurial syrup* in these cases, with invariable success.

When there is an inclination to sweat, it ought to be promoted, but not by warm sudorifics. The only thing to be used for that purpose, is plenty of diluting liquor, drank blood-warm, or the fever powders.

If the stools be loose, or even streaked with blood, no means should be used to stop them, unless they should be so frequent as to weaken the patient. Loose stools often prove salutary, and carry off the disease.

If an abscess is formed in the liver, methods should be tried to make it break and discharge outwardly, as fomentations, ripening poultices, &c. Sometimes, indeed, the matter of an abscess comes away in the urine, and sometimes it is discharged by stools; but these are efforts of nature which no means can promote. When the abscess bursts into the cavity of the abdomen at large, death must ensue; nor will the event be more favorable when the abscess is opened by an incision, unless in cases where the liver

adheres to the lining membrane, so as to form a bag for the matter, to prevent its falling into the abdomen; in which case, opening the abscess by a sufficiently large incision, will probably save the patient's life.

CHOLERA MORBUS.

The cholera morbus is a violent purging and vomiting of bilious matter, attended with gripes, sickness, and a constant desire to go to stool. It attacks suddenly, and is most common in autumn. This disease is quickly fatal if proper means are not used in due time for removing it.

In warm climates it is met with in all seasons of the year; but in cold climates it is apt to prevail most during the autumnal months, when there is excessive heat, or sudden transitions from heat to cold; and the violence of the disease has usually been observed to be greater in proportion to the intensity of the heat—circumstances which induce a belief that cholera morbus is the effect of a warm atmosphere producing some change in the state of the bile, which may consist either in the matter of the bile being rendered more acrid, or its secretion being preternaturally increased.

CAUSES.—It is occasioned by a redundancy and putrid acrimony of the bile; by eating more than can be digested; by food that easily turns rancid or sour on the stomach, as butter, bacon, sweetmeats, cucumbers, melons, cherries, and all cold and unripe fruits. It sometimes is the effect of strong acrid purges or vomits, or of poisonous substances taken into the stomach; or of violent passions.

SYMPTOMS.—It is generally preceded by a heartburn, sour belchings and flatulencies, with pain of the stomach and intestines. To these succeed nausea, excessive vomiting, and purging of green, yellow, or blackish colored bile; with a distension of the stomach and violent griping pains. Also, great thirst, quick and unequal pulse, and often a fixed, sharp pain about the navel. As the disease advances, the pulse sinks so low as to be quite imperceptible, the extremities grow cold or cramped, and are often covered with a clammy sweat, the urine is obstructed, and there is a palpitation of the heart. Violent hiccups, fainting and convulsions, are the signs of approaching death.

CURE.—At the beginning of this disease, the efforts of nature to expel the offending cause should be assisted; therefore, give plentifully of thin broths to facilitate the vomiting. Very weak chicken broth, perhaps, is preferable to any other for this purpose; it should not only be drank plentifully to promote the vomiting, but a clyster of it given every hour, to promote purging; or camomile tea, warm water, thin water gruel, barley water, linseed tea, or other diluting liquors may be drank. In addition to these means, flannel cloths, wrung out in the anodyne wash, warm, may be applied on the region of the stomach, renewing them as often as they become dry.

After these evacuations have been continued for some time, a decoction of toasted bread may be drank to stop the vomiting. The bread should be toasted till it is of a brown color, and afterwards boiled in spring water.

The vomiting and purging ought not to be stopped too soon, however. As long as these discharges do not weaken the patient, they are salutary, and may be allowed to go on, or rather ought to be promoted. But when the patient is weakened by the evacuations, which may be known by the sinking of the pulse, &c., recourse must immediately be had to opiates, as recommended above, which may be washed down with a glass of peppermint or cinnamon water; and to which may be added, strong wines and generous cordials. Warm negus, or wine whey, will likewise be necessary to support

the patient's spirits, and promote the perspiration. The fever powders will help to equalize the circulation. The patient's legs should be bathed in warm water, and afterwards rubbed with flannel cloths, or wrapped in warm blankets, and warm bricks applied to the soles of the feet.

The application of a blister to the stomach will sometimes put a stop to the vomiting.

When the violence of the disease is over, to prevent a relapse, it will be necessary for some time, to continue the use of small doses of laudanum. Ten or twelve drops may be taken in a glass of wine, twice a day for eight or ten days. The patient's food ought to be nourishing, but taken in small quantities, and he should use moderate exercise. As the stomach and intestines are generally much weakened, an infusion of colombo root, or other bitters, in wine, sharpened with elixir vitriol, and mint water, may be drank for some time.

[Sal æratus and rhubarb powders, dissolved in camomile tea, and sweetened with loaf sugar, to which may be added a little Dover's powder if there is much pain; if there is no inflammation you may add a little wine or brandy; if the bowels are very loose, and the patient is sinking, a heaping tea spoonful of the powder should be dissolved in a tumbler of the tea and taken during the day.]

No physician ought to despair of relieving the patient, even in the most desperate circumstances. The treatment here laid down, and particularly the opiates, if judiciously administered and duly persisted in, will often cure the most obstinate. I would therefore advise, in such cases, a full reliance on its final efficacy, rather than a rash impatience to try other medicines, far more uncertain, and perhaps dangerous.

DIARRHŒA, OR LOOSENESS.

Diarrhœa, in many cases, is not to be considered as a disease, but rather as a salutary evacuation. It ought, therefore, never to be stopped, unless when it continues too long, or evidently weakens the patient. As this, however, sometimes happens, we shall point out the most common causes of a looseness, with the proper method of treatment.

When a looseness is caused by catching cold, or an obstructed perspiration, turning the humors in upon the bowels, the patient ought to keep warm, drink freely of weak diluting liquors, mints, &c., bathe his legs frequently in lukewarm water, wear flannel next his skin, and take every other method to restore the perspiration to the surface.

In a looseness which proceeds from excess, or repletion, an emetic is the proper medicine; for if the fountain, (the stomach,) is emptied, the stream must dry up, of course. Emetics not only cleanse the stomach, but promote all the secretions. A day or two after the emetic, rhubarb may be taken, and repeated two or three times if the looseness continues. The patient ought to live on light food, of easy digestion, and drink thin gruel, &c.

A looseness occasioned by the obstruction of any customary evacuation, must be cured by restoring the evacuation, or by cleansing the system of the vitiated humor. This latter I should certainly consider preferable, and I generally effect it with the anti-mercurial syrup.

A periodical looseness ought never to be stopped. It is always an effort of nature to carry off some offending matter, which if retained within the body might have fatal effects. Children are very liable to this kind of looseness, especially while teething. It is, however, so far from being hurtful to them, that such children generally get their teeth with the least trouble. If

these loose stools should at any time prove sour or griping, a tea spoonful of magnesia, with four or five grains of rhubarb, may be given to the child in a little panada or other food; or the *chalk julep*; either of these, if repeated three or four times will generally correct the acidity, and carry off the griping stools.

A diarrhœa, or looseness, which proceeds from violent passions or afflictions of the mind, must be treated with the greatest caution. Emetics and purges are very improper in this case. Opiates, and other anti-spasmodic medicines are most proper. Ten or twelve drops of laudanum may be taken in a cup of valerian or pennyroyal tea, every eight or ten hours, till the symptoms abate.

When a looseness proceeds from acrid or poisonous substances taken into the stomach, the patient must drink large quantities of diluting liquors, with oil or fat broths to promote vomiting or purging. Afterwards, if there be reason to suspect that the bowels are inflamed, small doses of laudanum, and other means may be used to allay it.

When the gout, repelled from the extremities, occasions a looseness, it ought to be promoted by gentle doses of rhubarb, or other mild purgatives. The gouty matter should be driven back to the extremities by saffron tea internally, and warm fomentations to the feet and legs. The perspiration ought at the same time to be promoted by warm diluting liquors, as wine whey, with spirits of hartshorn, and a few drops of laudanum in it.

When a looseness proceeds from worms, which may be known by the sliminess of the stools, mixed with pieces of decayed worms, &c., medicines must be given which will kill and carry off these vermin, as snakehead, and such other as directed in the treatment of worms. Afterwards, lime-water, or the sal æratus and rhubarb mixture, may be given, to strengthen the bowels, and prevent the new generation of worms.

In people whose stomachs are weak, violent exercise, immediately after eating, will occasion a looseness. In this case strengthening medicines to brace the stomach and give it tone, are requisite. Such persons ought likewise to take a glass or two of old red port, or good claret. The following is no contemptible remedy for a diarrhœa proceeding from a weak stomach: gizzard skins of fowls, dried and pulverized:—dose, as much as will lay upon a shilling piece two or three times a day.

From whatever cause a looseness proceeds, when it is found necessary to check it, the diet ought to consist of rice boiled with milk, and flavored with cinnamon; mutton or lamb soup, rice, jelly, &c. The drink may be thin water gruel, rice-water, weak broth made from lean veal or a sheep's head, &c. Blackberry root, sweet bugle, and many other things which will be found among the recipes, are very useful.

VOMITING.

Vomiting may proceed from various causes; as excess in eating or drinking; foulness of the stomach; acrimony of the food; translation of morbid matter of ulcers, gout, erysipelas, or other diseases, to the stomach. It may likewise come from a looseness having been too suddenly stopped; from a weak stomach, the colic, a rupture, fit of the gravel, worms, or from any kind of poison taken into the stomach. It is an usual symptom of injuries done the brain, as contusion, compressions, &c. It is also a symptom of wounds, or inflammations of the diaphragm, intestines, spleen, liver, kidneys, &c.

Vomiting may be occasioned by unusual motions, as falling, sailing, riding backward in a carriage, &c.; also by violent passions, or the idea of nau-

seous or disagreeable objects. Sometimes it proceeds from a regurgitation of the bile into the stomach; in this case what the patient vomits is generally of a yellow or greenish color, and has a bitter taste. Nervous persons are often suddenly seized with fits of vomiting. Lastly, vomiting is a common symptom of pregnancy. In this case it generally comes on about two weeks after the stoppage of the *menses*, and continues during the first three or four months.

When vomiting proceeds from a foul stomach or indigestion, it is not to be considered as a disease, but as the cure of a disease. It ought, therefore, to be promoted by drinking lukewarm water or thin gruel. If this does not put a stop to the vomiting, a dose of blood root, lobelia, or ipecacuanha, may be taken, and worked off with weak camomile tea.

When the striking in of the gout, or any humor of the system, occasions vomiting, these must first be repelled from the stomach, and afterwards cleansed out of the system by alteratives, &c.

When vomiting is the effect of pregnancy it may generally be mitigated by keeping the body gently open with laxative food and purgatives of the mildest kind, as butternut, figs, manna, senna, and the like; if necessary, the sal æratus and rhubarb mixture may be given occasionally in small doses. Pregnant women are most apt to vomit in the morning, immediately after getting out of bed, which is owing partly to the change of posture, but more to the emptiness of the stomach. It may be generally prevented by taking a dish of coffee, tea, or some light breakfast, in bed. Women in this situation ought to be kept easy, both in body and mind. They should neither allow their stomachs to get quite empty, nor eat much at once. Cold water is very proper drink in this case; if the stomach be weak, a little brandy may be added to it. If the spirits be low, a little cinnamon water, with her other drink, may be taken.

If vomiting proceeds from weakness of the stomach, bitters will be of service. Colombo, or golden seal, in wine or brandy, with as much rhubarb as will keep the bowels open, are excellent medicines in this case.

A vomiting which comes from acidities in the stomach, is relieved by alkaline purges. The best preparation of this kind, is the sal æratus and rhubarb mixture; also magnesia, a tea spoonful three or four times a day, in a dish of tea, or milk; the chalk julep, &c.

When vomiting proceeds from violent passions, or affections of the mind, all evacuants, particularly vomits, must be avoided. These are dangerous. The proper medicines are cordials, with a little laudanum.

When vomiting proceeds from spasmodic affections of the stomach, musk, castor, valerian, and other anti-spasmodic medicines, are of use. Warm and aromatic plasters have likewise a good effect. Aromatic medicines may likewise be taken inwardly, as cinnamon or mint tea, wine, with spiceries boiled in it. The region of the stomach may also be rubbed with strong brandy or other spirits. The abdomen should be fomented with warm water, or the patient immersed up to the chest in a warm bath.

DYSENTERY, OR BLOODY FLUX.

A dysentery is a flux of blood from the bowels, It is most common in marshy countries, where, after hot and dry summers, it is apt to become epidemic. Persons are most liable to it who are much exposed to the night air, or where it is confined and unwholesome.

CAUSES.—The dysentery may be occasioned by any thing that obstructs the perspiration or renders the humors putrid; as damp beds, wet clothes, unwholesome diet, bad air, &c. An erosion of the inner membrane of the

intestines, long continuance of a diarrhœa, violent purges, &c. It is also communicated by infection.

SYMPTOMS.—It is known by a violent pain of the bowels, a constant inclination to go to stool, and generally more or less blood in the stools. It begins like other fevers, with chilliness, loss of strength, quick pulse, great thirst, and an inclination to vomit. The stools at first are greasy and frothy, afterwards streaked with blood, and at last have the appearance of pure blood, mixed with small bits of film or skin. Worms are sometimes passed both upwards and downwards through the whole course of the disease. When the patient goes to stool, he feels a bearing down, as if the whole bowels were falling, and sometimes a part of the intestine is actually protruded, which proves exceedingly troublesome, especially in children. Wind is likewise often a troublesome symptom toward the end of the disease.

This disease may be distinguished from a diarrhœa or looseness by the acute pain of the bowels, and the blood which generally appears in the stools; and from the cholera morbus by its not being attended with such violent fits of vomiting.

PROGNOSTICS.—If stopped too soon it might be productive of the worst consequences. In old or delicate persons, or such as have been wasted with the gout, scurvy, or other lingering diseases, it generally proves fatal. Vomiting and hiccuping are bad signs, as they show an inflammation of the stomach. Green, black, and stinking stools show the disease to be of the putrid kind. If clysters are immediately returned it is unfavorable. A feeble pulse, coldness of the extremities, with difficulty of swallowing, fainting, and convulsions, are signs of approaching death.

CURE.—Nothing is of more importance in this disease than cleanliness. Every thing about the patient should be frequently changed. The excrements should never be suffered to continue in his chamber, but removed immediately, and buried under ground. A constant stream of fresh air should be admitted into the patient's chamber, and it ought frequently to be sprinkled with vinegar, lemon juice or other acids.

The patient's spirits must be kept up with the hope of a cure. Nothing tends more to make any putrid disease mortal, than the fears and apprehensions of the sick. A flannel waistcoat worn next the skin has often a very good effect in dysentery, by promoting perspiration. Care should be taken, however, not to leave it off too soon.

In this disease, the greatest attention should be paid to the patient's diet; flesh, fish, and every thing that has a tendency to turn putrid or rancid on the stomach, must be abstained from. Apples boiled in water, water-pap, and plain light pudding, with broth made from the gelatinous or glue-like parts of animals, may constitute the principal part of the patient's food. Gelatinous broth not only answers the purpose of food, but likewise of medicine. A little cinnamon or other aromatic may be added, to give the broth an agreeable flavor, and the patient may take a little of it warm, with toasted bread, three or four times a day. This broth, although simple, has cured whole families when the common remedies failed.

Another kind of food, very proper in dysentery, is made by boiling a few handfuls of fine flour, tied in a cloth, for six or seven hours, till it becomes as hard as starch. Two or three table spoonsful of this may be grated down and boiled in such a quantity of new milk and water, as to be of the thickness of pap. This may be sweetened to the patient's taste, and taken for his ordinary food.

In Putrid Dysentery, the patient may be allowed to eat freely of most kinds of good ripe fruit; as apples, currants, strawberries, and such like. These may be eaten raw, or boiled with milk. Good fruit is in every respect

calculated to counteract the tendency to putrefaction, from whence the most dangerous kind of dysentery proceeds.

Whey may be used for common drink. The dysentery has often been cured by this alone. It may also be used as a clyster.

MEDICINE.—Begin the cure by cleansing the first passages. For this purpose an emetic must be given, as of blood root, ipecac, or lobelia, and worked off with weak camomile tea. The day after the emetic, a small dose of rhubarb or castor oil may be given, or sufficient to produce an evacuation. These may be repeated every other day, if necessary.

In addition to these evacuations, and the regimen prescribed above, especially if the case is obstinate, a decoction of witch-hazle bark, two ounces to a quart boiled, and then again boiled with as much more new milk, and tinctured with the balsam of life, or peppermint-water, with a little sugar, may be given freely for common drink, as much as the stomach will bear. This destroys the canker, and is very healing, while at the same time it affords nourishment, and may be depended on with certainty. The same may also be used for elysters.

If astringents are deemed necessary, a clyster of starch or fat mutton broth, with thirty or forty drops of laudanum in it, may be administered three or four times a day, if necessary. If this should not prove sufficiently astringent, a decoction of crane's bill or sweet bugle, may be added. The bowels should not be suffered to remain closed, however, more than ten or twelve hours at a time, till the danger is removed.

If the obstinacy of the case should render it necessary, astringents may also be given sparingly by the mouth, as the sweet bugle, laudanum, kino, crane's bill, &c. Port wine, properly diluted with water, may also be taken.

In the advanced and chronic state of the disease, at which time acidity of the stomach is apt to prevail, alkalies and absorbents, as the chalk julep, sal æratus and rhubarb, or even lime-water, become necessary. These may be joined with opiates.

[Marsh rosemary boiled in milk, one ounce to the pint, given in table spoonful doses, eight or ten times a day, according to the urgency of the case, I have found a very useful remedy. The dose for children should be regulated according to their age. This is the best medicine, according to my experience, that was ever used.]

Persons who have been cured of this disease are very liable to a relapse; to prevent which great circumspection with respect to diet is necessary. He should live principally on milk and vegetables, for a time. Gentle exercise on horseback or in a carriage is of great service. He may likewise use biters infused in wine or brandy; and may drink twice a day half a gill of lime-water, mixed with an equal quantity of new milk.

DIABETES.

The Diabetes is a frequent and excessive discharge of urine. It is seldom met with in young people; but often attacks persons in the decline of life, especially those who labor hard, or have been excessive drinkers in their youth.

CAUSES.—A diabetes is often the consequence of fevers, fluxes, &c., when the patient has suffered excessive evacuations. Also of great fatigue, hard drinking, strong diuretic medicines, as cantharides, spirits of turpentine, &c. It is often caused by a laxity or dilatation of the kidney glands; or from a thin dissolved state of the blood.

SYMPTOMS.—In diabetes the urine generally exceeds in quantity all the liquid food which the patient takes. It is thin, pale, and of an agreeable smell. The patient has a continual thirst, with some degree of fever; his mouth is dry, and he frequently spits a frothy saliva. The strength fails, the appetite decays, and the flesh wastes away. There is heat in the bowels, and frequently the loins, testicles, and feet are swollen.

Diabetes is often preceded or accompanied by an affection of the lungs, or some part of the chest. If of long standing or coming on after the departure of a fever, it is dangerous. In drunkards or old people, it is seldom removable.

CURE.—Every thing that stimulates the urinary passages, or tends to relax the habit must be avoided. For this reason the patient should live chiefly on solid food. His thirst may be quenched with acids, as sorrel whey, lemon juice, vinegar, elixir vitriol, &c. Mucilaginous vegetables, or rice with milk, are proper food. Also oysters, crabs, &c.

Lime-water, in which a due proportion of oak bark has been steeped, may be used. The cold bath should be used often. The patient should lie on a hard bed or mattress; as nothing hurts the kidneys more than lying too soft. Friction over the part is useful.

MEDICINE.—These may be made up from the classes of astringents, chalybeates, balsamics, acids, strengthening and tonic medicines. Gentle purges, if the patient be not too much weakened by the disease, have a good effect. These may consist of rhubarb, with caraway or any other spices, infused in wine, and may be taken in such quantities as to keep the body gently open. Tonics, as the tonic tincture, colombo, golden-seal, unicorn, &c., are necessary to brace up the relaxed solids.

The patient must next have recourse to astringents. From six to ten grains of gnm kino may be taken three or four times a day, or oftener, if the stomach will bear it; or a decoction of crane's bill, of oak bark, or sweet bugle, may be used. Alum whey is also very serviceable; it is made by boiling two quarts of milk over a slow fire, with three drachms of alum, till the curd separates. This may be taken in the dose of a tea cup full three or four times a day. These may be tinctured with a few drops of laudanum in the dose when taken.

A blister applied over the sacral bone will often prevent involuntary discharges.

There is a disease incident to laboring people in the decline of life, called an Incontinency of Urine. But this is very different from diabetes, as the water passes off involuntarily by drops, and does not exceed the usual quantity. It is owing to a relaxation of the constrictor of the bladder; and is often the effect of palsy. This may be mitigated by astringents, but is seldom curable. A piece of sponge should be worn to prevent the urine from galling the parts.

SUPPRESSION OF URINE.

A stoppage of urine may proceed from various causes; as an inflammation of the kidneys or bladder; small stones or gravel lodging in the urinary passages; pregnancy; a spasm or contraction of the neck of the bladder; venereal clap; stricture; clotted blood, &c.

If the obstruction proceeds from inflammation of the kidneys or bladder, the treatment will be found before described. Very small gravel, by getting into the neck of the bladder, irritates it so as to produce a spasm; or the gravel may be so large as totally to obstruct the passage; when either of

these is the case, the cleavers tea, with ten drops of oil of pumpkin seeds every two hours till relief is obtained, will open the passage. In addition to these, a large poultice of bruised onions must be laid over the lower part of the abdomen. These will relax the spasm, and give speedy relief. If there is a stricture of the urethra from the venereal disease, general remedies must be taken to remove the cause; while the oil of pumpkin seeds, or cleavers, may be taken inwardly, and an onion poultice applied outwardly, to relax the constriction. I have often cured a stricture with the anti-mercurial syrup alone.

Sometimes an obstruction of urine comes on in old people, who have labored hard, or from strains, which seems to proceed from an enlargement of the prostate gland at the neck of the bladder, or a thickening of the urethra, from a humor settling upon that part. This must be relieved, if at all, by cleansing syrups, and the above mentioned relaxing diuretics.

Blisters sometimes create a spasm upon the urinary passages.

In all inflammatory or spasmodic obstructions, fomentations are beneficial. These may consist of decoctions of mild vegetables, as marsh-mallows, camomile, oats, hops, &c. Cloths dipped in these may be applied to the part; or a bladder filled with the warm herbs may be put in a flannel bag and laid on. If the inflammation is great, use the anodyne wash. [Diuretics must not be omitted.]

In all obstructions of urine, the body ought to be kept open by warm and emollient clysters.

The food must be light and mucilaginous, as weak broths, decoctions of marsh-mallows, comfrey, &c.

GRAVEL AND STONE.

These diseases are the consequences of a peculiar disposition of the fluids, and more particularly the secretion of the kidneys, to form a calcareous matter, and have been supposed to be owing to the presence of an acid principle in them, called the uric acid. This is accompanied with a coldness and laxity of the parts, generally.

When small stones are lodged in the kidneys, or discharged along with the urine, the patient is said to be afflicted with the gravel. If one of these stones happens to make a lodgment in the bladder for some time, it accumulates fresh matter, and at length becomes too large to pass off with the urine. In this case the patient is said to have the stone.

CAUSES.—The stone or gravel may be occasioned by high living; the use of astringent wines; drinking hard water; a sedentary life; lying too hot, soft, or too much on the back; the constant use of water impregnated with earthy or stony particles. It may likewise proceed from an hereditary disposition. Persons in the decline of life, and those who have been much afflicted with gout or rheumatism, are most liable to it.

SYMPTOMS.—Small stones or gravel in the kidneys occasion fixed pains in the loins, sickness, vomiting, and sometimes bloody urine, and not unfrequently, a slight suppression of urine. When the stone descends into the *ureter*, and is too large to pass along with ease, all the above symptoms are increased; the pain extends towards the bladder; the thigh and leg of the affected side are benumbed; the testicles are drawn upwards, and the urine is obstructed.

A stone in the bladder is known from the pain at the time, as well as before and after making water; the frequent inclination to void the urine; the urine coming away by drops, or stopping suddenly when running in a full stream; by a violent pain in the neck of the bladder on motion, especially on

horseback, or in a carriage on a rough road; or from a white, thick, copious, stinking mucons sediment in the urine; from an itching at the top of the penis; from bloody urine; from an inclination to go to stool during the discharge of urine; the patient passing his urine more easily when lying than in an erect posture; from sharp pain in passing the last drops of urine, from the gravel being drawn into the mouth of the passage.

Any extraneous substance in the bladder will soon form a nucleus. When gravel has once formed in the pelvis of the kidneys, or elsewhere, it continues to increase by receiving on its surface new layers of uric acid. This is the reason why the calculi are formed of successive layers.

CURE.—Persons affected with the gravel or stone should avoid all aliments of a heating or windy nature, as salt meats, sour fruits, &c. They may use for diet such things as tend to promote the secretion of the urine, keep the body open, as asparagus, lettuce, parsley, turnips, carrots, and radishes; also onions, leeks and celery, which are counted medicinal; together with decoctions of mucilaginous vegetables, as marsh-mallows, parsley, liquorice, linseed, &c. Whey, buttermilk, barley-water, &c., are good for common drink.

To prevent a return, equal quantities of lime-water and buttermilk should be drank at meals, and constantly to the quantity of a quart a day. Gentle exercise is proper.

MEDICINE.—In what is called a fit of the gravel, which is occasioned by a stone lodging in the *ureter*, or urethra, cooling and relaxing diuretics and fomentations, cataplasms, &c., are necessary. These have been fully pointed out above under the treatment of inflammation of the kidneys and bladder. I shall, therefore, briefly mention them. A strong *cold* infusion of cleavers (for *steeping* destroys its virtue) should be drank constantly, with or without ten drops of pumpkin-seed oil, every three hours; these greatly relax constriction and open the passage. The oil alone may be used in large quantity when the other cannot be obtained. It is the most powerful diuretic I am acquainted with. At the same time, put large poultices of onions or garlicks, bruised and slightly warmed upon the lower part of the abdomen, small of the back, and over the kidneys, if the stone is in the ureter.

This treatment I have often seen give almost immediate relief from the most excruciating agony.

In all cases of gravel and stone, I prescribe a constant drink of the *cold* infusion of cleavers, or goose grass, made strong. This simple treatment alone has cured three fourths of the patients upon whom I have tried it. One man in particular, who had been afflicted with it nearly twenty years, and for the latter part of the time so severely as to be disabled from business, was entirely relieved in three weeks by merely drinking this tea alone; it dissolved the stone and brought it away in a sandy substance. This man has remained entirely free from it to this time; more than two years.

When there is a muddy slimy substance discharged with the urine, this cleavers infusion will effectually cleanse it out of the kidneys and bladder.

Alkalies, as the sal æratus, soda, lime-water, particularly that made from oyster shells; or lime-water and castile soap, shaken together, may be drank constantly for a preventive of gravel.

Many things have been recommended at different times as remedies for the gravel; as an infusion of the seeds of wild carrot, sweetened with honey; muriatic acid, twenty or thirty drops, three or four times a day; the *wu uersi*, or bear's whortle berry, in powder, from half to a whole drachm, two

or three times a day; also, queen of the meadow, milkweed, black currant root bark, gooseberry, &c.

[A single gravel will sometimes pass into the urethra and there lodge; in which case it is necessary that it should be extracted by the use of forceps; but if this cannot be done on account of its being situated high up in the urethra, it must be returned into the bladder by the use of a bougie.]

INVOLUNTARY DISCHARGES OF BLOOD.

Spontaneous discharges of blood, or hæmorrhages, often happen from various parts of the body. These are not always dangerous and often prove salutary. When such discharges are critical, which is frequently the case in fevers, they should not be stopped. Nor, indeed, is it proper at any time to stop them unless they be so great as to endanger the patient's life.

Periodical discharges of blood from any part of the body must not be stopped. They are always the efforts of nature to relieve herself. In the early period of life, bleeding at the nose is very common. Those who are further advanced in years, are more liable to a discharge of blood from the lungs. After the middle period of life, the piles are common; and in old age, discharges of blood from the urinary passages.

Involuntary fluxes may proceed from very different and opposite causes; as sanguine temperament, laxity of the vessels, plethoric habit; determination of blood to one particular part; inflammatory disposition of the blood, as in fevers, particularly when there is an obstructed perspiration; violent passions; overstraining, or injuries, &c.

The cure of hæmorrhage must be adapted to its cause.

BLEEDING AT THE NOSE.

When this requires to be stopped, let the patient blow out his nostril, or nostrils clean, and then immediately take a solution of gum kino, or crane's bill, or any other strong astringent, in the palm of his hand, and snuff it up the bleeding nostril: repeat if necessary. This will generally stop it.

When bleeding at the nose proceeds from any general disease, the treatment must be directed to the cause.

SPITTING OF BLOOD.

This is sometimes an idiopathic or original disease; though it may continue many years without any manifest inconvenience. It shows a consumptive habit.

CAUSE.—Tenderness and weakness of the lungs; violent exertions in speaking or singing. It is always attended with danger. Sometimes it is a symptom of pleurisy or inflammation of the lungs, when it is favorable; but more often it is a symptom of consumption and ulceration of the lungs, when it is a bad symptom. It is often a finishing stroke in the consumption, toward the latter stages of that disease, bursting out with such violence that the patient bleeds to death in a few minutes.

SYMPTOMS.—Spitting of blood is generally preceded by a sense of weight and oppression of the chest, a dry tickling cough, a hoarseness, and a difficulty of breathing: sometimes it is ushered in with shivering, coldness of the extremities, costiveness, pain in the back, &c. These show a general stricture upon the vessels, and require opening diaphoretics.

Spitting of blood in a healthy person is not dangerous; but when it attacks the tender and delicate, whose fibres are lax, considerable care is re-

quisite for its removal. When it proceeds from an ulcer in the lungs it is generally fatal.

CURE.—An emetic is generally of great benefit, although it may appear singular. It appears to act by breaking up the constriction, and taking off the determination to the lungs. The body should be gently opened, and the feet placed in warm water.

To check the discharge, I generally make use of the sweet bugle herb, which is moderately astringent, and rarely fails to cure it in a short time, without any injurious consequences. An ounce or two of it may be steeped to a pint, and a gill drank every fifteen minutes till the object is effected. If stronger astringents are required, the crane's bill, kino, oak bark, &c., may be given cautiously.

Common salt has the reputation of curing an hæmorrhage from the lungs almost to a certainty. The mode of giving it is, to pour down from a tea to a table spoonful of fine salt as soon as possible after the discharge begins. This quantity generally stops it; but the dose must be repeated daily for three or four days to prevent a return. If the bleeding continues the salt must be continued in large doses till it is checked.

The conserve of roses, or rose-water itself is a good medicine. Acids, as elixir vitriol, &c., should be taken and continued for some time to prevent a return; or which is better, the balsam of life, should be taken continually.

The food should be cooling and strengthening. Milk may form a principal part of the diet. The patient should beware of vigorous efforts of the body, and violent agitations of the mind.

VOMITING OF BLOOD.

This is not so common as the other discharges of blood which have already been mentioned; but it is very dangerous, and requires particular attention. It is generally preceded by pain in the stomach, sickness, and nausea; and is accompanied with great anxiety and frequent fainting fits.

This disease is sometimes periodical in which case it is not so dangerous. It may proceed from an obstruction of the menses or the piles; from wounds of the stomach, strong emetics or cathartics, acrid poison, or sharp substances taken into the stomach. In hysteric women it is very common, though not so dangerous a symptom.

A great part of the danger of this disease arises from the extravasated blood lodging in the bowels, and becoming putrid, by which means a dysentery or putrid fever may be occasioned. To prevent this keep the bowels open with clysters. Cathartics must not be given till the discharge is stopped. All the food and drink must be of a mild cooling nature, and taken in small quantities. Even cold water drank has sometimes proved a remedy. Opiates may be of service, but they must be given in very small doses, as four or five drops of laudanum twice or thrice a day.

After the discharge is over, as the patient is generally troubled with gripes occasioned by the acrimony of the blood lodged in the intestines, gentle purges may be given.

BLOODY URINE.

This is a discharge of blood from the vessels of the kidneys or bladder, occasioned by their being either enlarged, broken, or eroded. It is more or less dangerous according to the cause.

When pure blood is voided suddenly, without interruption and without pain, it proceeds from the kidneys; but if the blood be in small quantity, of a dark color, and emitted with heat and pain about the lower portion of the abdomen, it proceeds from the bladder. When bloody urine is occasioned by a rough stone descending from the kidneys to the bladder, which

wounds the ureter, it is attended with a sharp pain in the back, and difficulty of passing the urine. If the coats of the bladder are injured by a stone, and the bloody urine follows, it is attended with the most acute pain and previous stoppage of urine.

Bloody urine may also be occasioned by falls, blows, hard riding, or any violent motion. It may also proceed from ulcers of the bladder, from cordee, and sharp diuretic medicines, particularly cantharides.

If mixed with purulent matter, it shows an ulcer somewhere in the urinary passages. Sometimes this discharge proceeds from excess of blood, in which case it is salutary. If the disease, however, be great, it may waste the patient's strength, and occasion an ill habit of body, a dropsy, or a consumption.

The treatment of this disorder must be directed to the cause. When owing to the stone, we must endeavor to remove that. If attended with symptoms of inflammation, mild purgatives and cooling diuretics, as cleavers are proper. If it proceeds from a dissolved state of the blood, it is commonly the symptom of some malignant disease, as putrid fever, small pox, &c.; in which case warming and bracing tonics are required, together with wine, acids, &c. If from an ulcer in the kidneys, cleansing and healing medicines, as the anti-mercurial syrup, balsam of life, balsam of fir, marsh-mallows, liquorice, &c.

If the case be urgent, gentle astringents may be ventured on, as lime-water, sweet-bugle, or kino if necessary

BLEEDING AND BLIND PILES.

A discharge of blood from the pile veins is called the *bleeding piles*. When the vessels only swell and discharge no blood, but are exceedingly painful, the disease is called the *blind piles*.

Persons of loose spongy fibre, of a bulky size, who live high and lead a sedentary, inactive life, are most subject to this disease. Men are more liable to the disease than women, especially those of a sanguine, plethoric, or a scorbutic habit, or of a melancholy disposition.

The piles may be occasioned by an excess of blood; high seasoned food; violent exercise, particularly hard riding; neglect of usual evacuations; costiveness; straining hard at stool; pregnancy; acrimony, or vitiation of the fluids.

A flux of blood from the *anus* is generally the *effect* of a disease, and not a disease of itself. It often carries off diseases, and is particularly beneficial in the gout, rheumatism, asthma, and hypochondriac complaints, and also in colics and inflammatory fevers.

SYMPTOMS.—Swelling of the anus, great pain in going to stool, voiding of blood, sensation of pungent pain; heat, or weight and pressure in the anus.

They sometimes, though rarely inflame and become gangrenous; sometimes grow ulcerous and bring on a fistula. If they continue long without being resolved, they are exceedingly troublesome, and even render life burthensome. If they happen periodically and are always attended with a discharge of blood, they are salutary evacuations, and to stop them may prove dangerous, without first purifying the system.

CURE.—If they proceed from the vitiation of the humors, cleansing medicines are required. I have generally made use of the anti-mercurial syrup for the alterative remedy, and it has never disappointed me. The bowels should be kept gently open, and no hard faeces suffered to accumulate in the rectum. For this purpose, laxative, emollient, and healing clysters should be given, particularly mullein tea, sweetened with molasses. I never venture to stop the discharge, unless it is weakening, before the blood

is properly cleansed. If much canker is apparent, injections and washes of witch-hazle decoction, tinctured with the balsam of life, are excellent. If the patient is feeble, tonics and acids may be used.

In the Blind Pile the cause is the same, and the same general cleansing treatment is necessary. The drink must be diluting; and the bowels kept open by emollient and detergent clysters. The ointment composed of bitersweet, plantain, and spikenard, is, perhaps, as good as any that can be used as an external application; or if they are very painful, a weak solution of sugar of lead, with laudanum, may be used with the ointment. Injections of a decoction of sumach bobs are second to none.

When the piles are exceedingly painful and much swollen, but discharge nothing, the patient may sit over the steam of warm water; or poultices of leeks, garlics, or onions fried in butter, may be applied. If these do not produce a discharge, but the piles appear large, they may be opened. The operation is easy and attended with no danger.

The pain of the piles is often removed by an emetic. When a pile has a narrow neck, it is best extirpated by a knife.

[If the rectum falls down, or, in other words, if the piles become external, they should be immediately returned; this may save the patient from a severe and aggravated attack of the disease. If the protruded parts are much inflamed, a poultice of hops or flax-seed should be applied.]

FISTULA IN ANO.

[This disease is a permanent opening situated in or about the anus; this term is also applied to every collection of matter formed in the vicinity of this organ.]

CAUSES.—The most common cause is the protracted existence of piles; much riding on horseback will sometimes contribute to the formation of this disease; injuries received about the parts, &c. It generally commences with the appearance of a small pimple external to and near the anus, which, in time, becomes matured, and finally breaks, when it discharges a thin sanies, or matter. The disease then appears to work its way inward, the opening having various shapes in different cases, and often taking very obscure and zigzag routes. If allowed to proceed, under these circumstances, the disease will sometimes extend itself through the rectum forming an opening above the sphincter ani muscle.

The great difficulty experienced in the cure of fistula in ano, I believe to be owing to its being situated in the soft parts about the anus, thereby suffering irritation from every motion of the patient's body.

In some cases of this disease the amount of matter discharged is immense. I once saw a case in which there were five fistulous openings, all extending into the rectum, and through all of which the excrements freely passed.

TREATMENT.—The general treatment consists in the use of alteratives; as remedies of this character, the anti-mercurial syrup and tonic tincture, I have found in my own practice to be of exceeding value.

The green salve, applied externally, I have found to be of service. A wash of marsh rosemary or blood root, in decoction, if it can be borne, should be used; I prefer the tincture of the blood root to a decoction. Some surgeons make use of the caustic potash solution as a wash in this disease. I have employed a solution of lunar caustic with much benefit. The practitioner must be influenced by the peculiarities of each case in the use of these remedies.

In former times the dread entertained in the minds of patients for surgi-

cal operations was much greater than at the present day. I have seen terrible effects result from the unskillfulness of the surgeon in performing the operation for fistula in ano. I have several times performed this operation with the most entire success, the patients having perfect control of their bowels afterward. The success of this operation depends much on the manner in which it is performed; it should always, therefore, be done by a skillful surgeon.

My father was opposed to any operation being performed for the cure of this disease; but his opposition was occasioned by the evil effects he had witnessed follow the operation when performed in a careless manner and by unskillful surgeons. He says: "A surgical operation for the cure of fistula is very painful, and I consider it altogether preposterous. I have several times seen the function of the constrictor muscle of the anus entirely destroyed by these operations, so that the miserable sufferer discharged his excrements *involuntarily*." What a cure is this? The original disease would be infinitely preferable!"

This operation will be found described in the department of surgery.]

HEAD-ACHE.

Sometimes the pain is internal, sometimes external; sometimes it is an original disease, and sometimes symptomatic. When the head-ache proceeds from a bilious habit, the pain is very acute and throbbing; when from a cold, the pain is dull and heavy, with a sensation of cold in the parts.

CAUSES.—Whatever obstructs the free circulation of the blood through the vessels of the head, may occasion the head-ache. This is the case when the brain is compressed by an enlargement of the bones of the skull from disease, as in the venereal. The head-ache often proceeds from the suppression of the customary evacuations, as sweating of the feet, bleeding at the nose, &c. It may likewise proceed from any cause that determines a great flux of blood toward the head; as coldness of the extremities, or hanging down of the head for a long time. Whatever prevents the return of blood from the head, will likewise occasion a head-ache; as a tight cravat, a new hat, or the like.

When the head-ache proceeds from the stoppage of a running at the nose, there is a heavy obtuse pain pressing in the fore part of the head, in which there seems to be such a weight that the patient can scarcely hold it up. Sometimes the head-ache is occasioned by the striking in of some eruptive disease.

A frequent cause of head-ache is, fermentation or crudities in the stomach, from which arises an acid gas, affecting the nerves. It often proceeds also from costiveness and indigestion; strong liquors, and spasms. There is likewise a most violent, fixed, constant, and almost intolerable head-ache which occasions great debility both of body and mind, prevents sleep, destroys the appetite, causes a swimming dimness of sight, a noise in the ears, convulsions, epileptic fits, and sometimes vomiting, costiveness, and coldness of the extremities.

The head-ache is also a common symptom in hysteric and hypochondriac complaints; as also in fevers.

When the head-ache attends an acute fever, with pale urine, it is an unfavorable symptom. In excessive head-aches, coldness of the extremities is a bad sign. When it continues long and is very violent, it often terminates in blindness, apoplexy, deafness, palsy, or epilepsy.

CURE.—If symptomatic of some other disease, it is to be driven away by the removal of the disease which occasions it.

If it proceeds from the stomach, give an emetic, as lobelia, blood root, ipecac, &c. These can seldom come amiss, for they relax the constriction and equalise the circulation, thereby relieving the head. Bathe the head freely with the anodyne wash—it gives great relief. If attended with costiveness, remove that. If it proceeds from an acrid serum in the blood, blisters may be applied to the back of the neck, strong purgatives administered, and general remedies used for quickening and strengthening the blood. The fever powders and other diaphoretics are appropriate. Opiates may be given to allay the severity of the pain. Sneezing powders must not be omitted.

The feet and legs should be bathed in warm water, and drawing poultices may be applied. For common drink, valerian tea is excellent. Ginger is highly beneficial in this and other disorders affecting the nerves. Electricity often removes it.

If arising from fermentation in the stomach, the sal æratus and rhubarb mixture, taken continually for a time, will be found to remove it. As a substitute for the anodyne wash, in cases of inflammation, salt dissolved in vinegar may be used.

When the head-ache arises from a vitiated state of the humors, as in the scurvy and venereal disease, the ordinary remedies for those diseases become proper; as the anti-mercurial syrup decoctions of sarsaparilla, &c.

When the head-ache is so intolerable as to endanger the patient's life, or is attended with continual delirium, opiates may be given; as twenty drops of laudanum in a cup of valerian or pennyroyal tea, twice or thrice a day. At the same time the head should be bathed constantly with the anodyne wash, while draughts of mustard-seed, or horse-radish, ought to be applied to the feet.

PAIN IN THE FACE.

Chew the tooth-ache bark, and apply the potato poultice over the face, wherever affected. The *anodyne wash* may also be used to advantage; as also, emetics and purges. These will usually be found sufficient.

EAR-ACHE.

This disorder chiefly affects the membrane which lines the inner cavity of the ear; and often accompanies or is caused by the tooth-ache. The same causes which produce the latter, may also bring on the former. It may also be occasioned by worms or insects getting into the ear, or being bred there; or by the collection of morbid matter in the ear. This often happens in the decline of malignant fevers, and occasions deafness, which is generally considered a favorable symptom.

CURE.—If from insects, or other bodies in the ear, they must be removed. A strong tincture of assafoetida may be dropped in warm, or some relaxing oils; afterwards the patient should take some sneezing snuff, which will often throw it out. The worms will sometimes crawl out of their own accord upon pouring in these oils.

If the pain proceeds from inflammation, the proper medicines are: poultices of potatoes, onions, or bread and milk, applied to the ear. Blisters behind the ear; or on the neck; purges; the *anodyne wash* to the head; fomentations and applications of hops, warmed with vinegar, camomile flowers, marsh-mallows, &c.

Ear-ache sometimes continues for some time without any apparent inflammation, and is then frequently removed by filling the ear with cotton or wool, moistened with laudanum or camphor. A plaster of burgundy pitch may be applied behind the ears.

DYSPEPSIA AND PAIN IN THE STOMACH.

This may proceed from various causes, as indigestion, wind, acrid bile; from sharp, acrid or poisonous substances taken into the stomach; worms, heartburn, flatulency, lightness at the pit of the stomach, and other dyspeptic symptoms. Striking in of gouty or other matter to the stomach.

Women in the decline of life are very subject to pains of the stomach and bowels, especially such as are afflicted with hysteric complaints. So also are hypochondriac men.

When the pain in the stomach is most violent after eating, it proceeds from some fault either in the digestion or food. In this case the patient ought to eat such food as he finds agrees with him best. If the stomach is foul, he should take an emetic, and afterwards a rhubarb purge. If acid prevails in his stomach, he should take the sal æratus and rhubarb mixture whenever necessary. In addition to all these, the patient should take warm stomachic bitters, daily, to remove the cause.

If wind is the cause, which may be known by a sensation of swelling at the pit of the stomach, and by the gulping up of wind, carminatives, as the pleurisy root, in powder, or united with calamus or angelica, may be taken to relieve the flatulency; and afterwards, bitters as before directed, should be taken to strengthen the stomach. In all these affections, *ginger* is an excellent remedy, to be taken constantly for a length of time, in powder, or tea, as much as can be borne well.

One important object in these dyspeptic affections, is, to keep down the acid that predominates in the stomach. Another is to keep the bowels open and regular; which must be done by making use of injections, and going to stool regularly at such an hour of the day, say after breakfast, and making an attempt at a passage, whether there is any inclination or not: and thus, after a time and with the use of proper strengthening medicines, bring about a regular evacuation without any physical aid. Costiveness, unless removed, will render abortive all attempts to cure affections of the stomach. And physic must not be used to effect this, as it only weakens more and more.

The medicines, either separately or compounded, which are efficacious for strengthening the stomach in the above complaints, are, golden seal, (which I consider first and best,) pleurisy root, angelica, myrrh and iron, cayenne pepper, ginger, the clove jelly, gizzard skins, the *tonic tincture*, galangal, unicorn, valerian, balm of gilead buds, wormwood, tansy, whitewood, horse-radish, mustard, gentian, caraway, fennel, spikenard, plantain, bittersweet, mint, peppermint, orange peel, snakeroot, &c.; and above all, when it proceeds from a concentration of humors upon the stomach, cleansing medicines, as the *anti-mercurial syrup*, balsam of life, &c.

This complaint may likewise be greatly relieved by labor, especially digging, reaping, or any employment which keeps the bowels in motion. Thus, working in a garden has cured, when medicines failed.

When pain in the stomach is occasioned by the swallowing of acrid or poisonous substances, they must be discharged by vomit. This may be excited by butter, oils, or other soft things that sheath and defend the stomach.

[Much benefit may be obtained by rubbing the abdomen over the stomach and bowels with the hand several times a day, bearing on pretty hard, which often changes the sluggish action of the stomach. Riding on horseback,

driving cart or wagons, or any free exercise will produce a beneficial effect. A change of diet, and sometimes that of climate is necessary. The patient should rise early in the morning; if he have much appetite be careful how you allow him to indulge in eating; he should be strictly temperate in all things, as much depends on his manner of living and his enjoyment of wholesome exercise.]

When a pain in the stomach proceeds from a translation of gouty matter, warm cordials are necessary, as generous wines, brandy, &c. 'Some have drank a whole bottle of brandy, rum, or other spirits, in this case in a few hours, without being intoxicated, or even feeling the stomach warmed by it. The quantity to be taken must be left to the feelings of the patient. When there is an inclination to vomit, it may be promoted by drinking warm camomile tea.

When the disease is occasioned by worms, they must be destroyed.

If the stomach is greatly relaxed and the digestion bad, elixir vitrol will be beneficial.

WORMS.

Worms are of three sorts, viz: the round worm, whose seat is in the stomach; the *tape-worm*, which is to be found in most of the intestines; and the small white worm, which infects the rectum. The tape-worm is white, very long, and full of joints.

SYMPTOMS.—Of the round worm—squeamishness, vomiting, disagreeable breath, gripes, looseness, swelling of the abdomen, fainting, loathing of food, and at other times a voracious appetite, a dry cough, convulsions, epileptic fits, and sometimes a privation of speech; greasy excrements, grinding of the teeth, picking of the nose, flushing heats, &c.

The peculiar symptoms of tape-worm are, swoonings, privation of speech, emaciation and voracious appetite. The small worms of the rectum cause itching of the anus, looseness, and frequent inclination to go to stool.

If they remain long in the bowels, they produce a variety of unaccountable disorders: strange and incredible are the effects which are occasioned by these detestable vermin. Few persons are wholly free from them, particularly females: old people are not exempt from their attacks, although they often suppose so. After they are destroyed, they must be conveyed out of the body, by strong purges, otherwise they will create a putrid acrimony in the bowels.

THE CURE.—Numberless medicines are extolled for killing worms, though all of them fail sometimes. One rule to be observed, however, in the administration of all worm remedies, is, that they be prepared or given in molasses or other sweet substances, which serve as a decoy for the vermin.

I have found the following compound very effectual in removing worms; take snakehead, the dried herb, 1-4th lb., boil in water to a pint: add aloes, 2 oz., and alum, 1-2 oz; dissolve them, and then add to the whole a pint of molasses. Dose for a child two years old, a tea spoonful every fifteen minutes till it operates as physic; when it will usually bring away a stringy, slimy mass, the remains of the vermin.

Or, the snakehead alone, in decoction of an ounce of the dried herb boiled to a half pint, and sweetened, may be drank in the course of two hours, with short intervals, and then followed with a brisk cathartic, as aloes, blue flag, culver's root, mandrake, or bilious pills. This is usually successful.

Salt water, drank and laid with cloths upon the stomach, will often destroy

worms; or, a dose of sulphur may be taken at night, and salt and water in the morning.

For the small pin worms in the rectum, injections must be used; as of salt water. Oily clysters, sweetened with sugar or honey, are very efficacious in bringing these worms away.

Among the vermifuges may be included; black hellebore, or bear's foot, in decoction, or in powder, fifteen grains of the dried leaves, for a dose to a child, from four to seven years old, and repeated two or three times; male fern root, red cedar balls, tansy seed, worm seed oil, spirits of turpentine. Indian hemp, wormwood, pink root, old tobacco pipes, pulverised, alum, spotted adder, garlicks and onions, iron, steel filings, &c.

But worms, though expelled, will soon breed again, if the stomach remains weak and relaxed; to prevent which we would recommend the use of alkalies, as lime-water; together with tonic bitters and strengthening medicines, in wine, as golden seal, centaury, camomile flowers, wormwood, tansy, iron and myrrh, the tonic tincture, gentian, colombo, snake root, &c.

Spirits of turpentine is often successful in destroying the tape-worm.

[A gentleman who was afflicted with tape-worm, called on me, about two years since, and stated that he had been in the habit of taking an active cathartic about once a month, during the operation of which the worm would be discharged, in some instances, from four to five inches in length; he would sometimes, when a portion of the worm had protruded, take hold of it and pull gradually until it could be moved no farther, owing to the contraction of the sphincter ani muscle, when it would break off. This he had repeated several times. I gave this man a cathartic composed of equal parts of mandrake root and blue-flag, to be repeated if necessary, in the course of two, three, or four weeks. This medicine produced a thorough evacuation of the worm, and the patient has been entirely free from this annoying affection since that time.]

JAUNDICE.

The jaundice is a copious effusion of the bilious fluid throughout the whole habit of the body. It is first observable in the white of the eye, which appears yellow. Afterwards, the whole skin puts on a yellow appearance. The urine too is of a saffron hue.

There is likewise a species of this disease called the black jaundice.

CAUSES.—The immediate cause of jaundice is an obstruction of the bile, from biliary calculi, or stones, in the gall-bladder, or its ducts; from thickened bile; spasmodic constrictions of the ducts themselves; pressure from adjacent tumors; scirrhus of the liver, &c. The remote or occasional causes are, the bites of poisonous animals; the bilious or hysteric colic; violent passions; sometimes it proceeds from obstinate agues, particularly when the disease has been kept under without being cured, by the continual use of quinine, bark, &c. Pregnant women are very subject to it. It often proceeds from a too profuse secretion of bile.

SYMPTOMS.—At first, weariness, languor and inactivity; his skin is dry, and of a yellow color, as also the eyes; a pricking or itching over the whole body. The stools are of a whitish or clay color, and the urine yellow. The breathing is difficult, and the patient complains of an unusual load or oppression of the chest. There is a heat in the nostrils, a bitter taste in the mouth, loathing of food, sickness of the stomach, vomiting, flatulency, and other symptoms of indigestion; swelling at the pit of the stomach, periodical colics, rumbling of the bowels, &c.

When the disease proceeds from an obstruction of the bile, the peculiar symptoms are, white or ash-colored stools, obstinate costiveness, the color of the skin black, sour belchings. If from an overflowing of the bile, the stools are intensely yellow.

If recent, it is easily cured; a black turbid urine indicates the expulsion of the disease; the yellower the skin, the easier; the blacker, the harder it is to be removed. In a state of pregnancy it is of little consequence, as parturition removes it. From a scirrhus of the liver the cure is difficult.

[I remember a case which came under my observation, in which the patient looked as if she had been dyed of a dark yellow, or yellowish black; this yellowish appearance was uniform over the whole body; the perspiration gave to the sheets the same appearance as that of her body; her head and extremities were much swollen.]

THE CURE.—The diet should be light, but not altogether vegetable, as veal or chicken broth, boiled apples, with light bread. Three or four raw eggs ought to be taken every day; they are of great advantage in any stage of the disorder. The drink should be buttermilk, whey, sweetened with honey, or decoctions of cool, opening vegetables, as marsh-mallows, liquorice, &c. Amusements are likewise of great use in the jaundice. Whatever, therefore, tends to promote the circulation, to cheer the spirits, must have a good effect.

MEDICINE.—Whether the passage of the bile be obstructed by biliary concretions or spasms, the same plan nearly must be adopted. First, an emetic must be administered; and if the disease proves obstinate, it may be repeated once or twice. No medicines are more beneficial in the jaundice than emetics. By the commotion they excite, they frequently break up the obstruction. Blood root, lobelia, or ipecac, may be used for this purpose, and worked off with weak camomile or pennyroyal tea. The body must likewise be kept open by some laxative and alkaline mixture, or even Castile soap alone. Clysters may be used, and should have plenty of soft soap mixed with them. The tonic mixture, and iron and myrrh, may be given, moderately at first, increasing afterwards, if they have a beneficial effect. These are the best medicines that can be given, if the liver has not become scirrhus.

Fomenting the parts about the region of the stomach and liver, and rubbing them with a warm hand, or flesh brush, are very beneficial.

Jaundice, particularly if connected with an affection of the liver, has often been cured by the decoction or expressed juice of dandelion persevered in for a sufficient length of time. Half an ounce of the green juice, or more if the patient can bear it, should be taken twice or thrice a day, or an equal proportion of the decoction. This should be taken in sufficient quantity at first to create a sensation that may be felt throughout the whole system.

In this disease, soap alone has been considered as almost a specific by some; but it is much better combined with rhubarb, and taken sufficiently to keep the bowels gently open. The iron and myrrh pills being mixed with soap are peculiarly appropriate.

Such things as quicken the circulation, stimulate the solids, and give a tone to the system, are proper, unless there is much inflammation; as golden seal, bayberry, angelica, blue and white cohush, vervain, saffron, wild cherry bark, in decoction, or cider; hard soot, hogs' gall, bitters of every kind, Colombo, unicorn, horse-radish, the tonic tincture, sulphur, gum guaiacum, grains of paradise, the clove jelly, &c. A compound of the bark of white wood, box wood, wild cherry, and prickly ash, of each one handful, and horse-radish roots and mustard-seed, each two ounces, and a handful of hops—all infused in a gallon of cider, is excellent in this disease. The dose is a wine glass full three times a day.

DROPSY.

The dropsy is a preternatural swelling of the whole body, or some part of it, occasioned by a collection of watery humor, or serum; this is effused in the cellular membrane, or some of the cavities, or throughout the system; or it may be confined to particular parts, or cavities, as the abdomen, chest, brain, ovaria, womb, &c. When the lymph is contained in little vessels in distinct cells, like a bunch of grapes, they are called *hydotes*.

There is another species of dropsy called *tympanites*, which consists of rarified vapor, or putrid fat collected, in the abdomen. This may be known by the tightness of the skin; the abdomen, if struck, sounds like a drum, whence its name; no fluctuation of water can be perceived.

[When the dropsy is situated in the thorax, or chest, it is called hydrothorax, when in the abdomen, ascites, and when in the extremities or over the whole body, it is called anasarca.]

CAUSES.—Drinking ardent spirits. It is true, almost to a proverb, that hard drinkers die of a dropsy. Sloth; excessive evacuations, as frequent and copious bleedings, strong purges often repeated, frequent salivations; the sudden stoppage of any customary evacuation, as the menses, or piles.

The dropsy may proceed from whatever causes a relaxation of the absorbents, so that the fluids are not taken up and secreted, but effused into the soft parts of the body. This may be occasioned by weak watery food or liquors; long continued agues, especially where quinine has been administered; jaundice, scirrhus of the liver, scarlet fever, diarrhœa, dysentery, consumption. It is more common in low, damp, or marshy situations. In short, whatever obstructs perspiration, or prevents the blood from being duly prepared, may occasion a dropsy.

SYMPTOMS.—The universal dropsy generally begins with a swelling of the feet and ankles towards night, which for some time disappears in the morning. In the evening, the parts if pressed with the finger, will pit. The swelling gradually ascends, and occupies the trunk of the body, the arms, and the head. Afterwards the breathing becomes difficult, the urine is small in quantity, and the thirst great; the body is bound and the perspiration is greatly obstructed. To these succeed torpor, heaviness, a slow wasting fever, and a tickling, troublesome cough. This last is generally a fatal symptom, as it shows the lungs to be affected.

In dropsy of the abdomen, besides the above symptoms, there is a swelling of the abdomen, and often a fluctuation, which may be perceived by striking it on one side, and laying the palm of the hand on the opposite.

[In cases where the kidneys are diseased, the urine, when boiled, becomes white, which appearance is occasioned by its albumen. Nitric acid will produce the same effect as boiling, when a few drops are put into the urine. In this case the patient seldom recovers, as there is generally a change in the structure of the kidneys.]

PROGNOSTICS.—If taken in time it is easily cured; and in the worst stages, a cure is not to be despaired of. When the disease comes on suddenly, and the patient is young and strong, there is great reason to hope for a cure, especially if the medicine be given early. But if the patient be old, has led an irregular life, or if there be reason to suspect the liver, lungs, ovaria, or any of the viscera are unsound or diseased, there is great reason to fear that the consequences will prove fatal. Abscesses, livid spots on the thighs, the body emaciated, the countenance pale and of a cadaverous aspect, are harbingers of death.

When there is not strength enough in the system to assist the operation, of the medicines, there is indeed little hope.

THE CURE—Wholly consists in evacuating the waters which are gathered, and in preventing their collection for the future. To this end conduce cathartics, diuretics, detergents, emetics, diaphoretics, and, (perhaps the sooner the better) tapping; after these, tonics, stomachics, iron, and astringents.

He must abstain as much as possible from all drink, especially weak and watery liquors, and must quench his thirst with mustard whey, or acids, as juice of lemons, oranges, sorrel, elixir vitriol, and such like. His aliment ought to be dry, of a stimulating and diuretic quality, as toasted bread, the flesh of birds or other wild animals, roasted; pungent and aromatic vegetables, as garlic, mustard, onions, water-cresses, horse-radish, smellage, &c. He may also eat hard biscuit dipped in a little wine or brandy; this is not only nourishing, but tends to quench thirst. Some have been actually cured of this disease by a total abstinence from all liquids; this, however, is not always advisable.

Exercise is of the greatest importance in the dropsy. If a patient be able to walk, dig, ride, or the like, he ought to continue these exercises as long as he can. His bed ought to be hard, and his apartments dry and warm. In a word, every method should be taken to promote the perspiration, and brace the solids. For this purpose it will likewise be proper to rub the patient's body two or three times a day with a hard cloth or flesh brush.

In the treatment of the dropsy, we should first ascertain whether the disease be an original one, or symptomatic of some other; as by removing the cause we shall often be enabled to remove the effect also, and thus perform a cure. For example, if a dropsy shall have arisen in consequence of intemperance, exposure to moist air, profuse bleeding, or, if it has proceeded from long continued agues, obstructions in the abdominal, or thoracic viscera, &c., the removal of these will be the first indications of a cure. The next will be, to evacuate the serous fluid already collected, and to strengthen the blood, and restore the tone of the constitution generally.

MEDICINE.—If the patient be young, his constitution good, and the disease has come on suddenly, it may generally be removed by strong emetics, as lobelia with bayberry, given with but little water; brisk purges, as gamboge, in small nauseating doses; or blue flag; these, properly administered, will bring away immense quantities of water, but they must not be ventured on unless there is sufficient strength to assist their action.

The diuretics should be of the warmest and most stimulating kind, as fox-glove, broom ashes, orris root, artichoke leaves, garlics, horse-radish, &c.; any thing of a cold, relaxing nature, is hurtful; for that reason, cleavers, or oil of pumpkin seeds, is improper. Squills and juniper oil are serviceable.

After the first evacuations, if there is any prospect of overcoming the disease without tapping, we should endeavor by all means to do so, by a free use of the most bracing and stimulating tonics, joined with diuretics; for this purpose I have generally made use of the tonic mixture, or similar preparations, and with very good success. Horse-radish or mustard seed, with spikenard, should be applied in the form of poultices, to the feet, legs, bowels, and hands, if necessary. Much may be expected from these, and they should not be omitted.

But if the abdomen is largely distended with water, if the bowels have become water-soaked, obstinately costive, and their action destroyed, so that medicine or other means take no effect, *tapping* becomes necessary. The method of performing this operation will be found fully described in the article on surgery.

[I have never known the operation of tapping cure the patient of dropsy. He will seem to be getting better for a short time; but the fluid soon re-collects, causing the frequent repetition of the operation necessary, and the

patient is ultimately destroyed by the disease. This is my experience, and I have myself performed the operation several times. I have seen several desperate cases of this disease cured by medicine. Elaterium frequently used, is one of the best medicines that can be employed.]

After the waters are drawn off in this manner, by tapping, our efforts should be redoubled to prevent a new collection. Bandages should be drawn tightly round the abdomen, and worn continually. The strengthening medicines must be continued, and nothing left undone that may assist in the cure. If, however, the collection should again acquire any considerable bulk, the operation should be repeated as often as necessary. The only ill effect to be apprehended from tapping or scarification, is mortification, which may take place in extremely debilitated cases; old ulcers, in the dropsy, also subject the patient to a greater risk of mortification.

The bowels should be kept open with clysters, if necessary.

Many excellent remedies and compounds for the cure of this disease will be found among the recipes, which the judgment of the practitioner will enable him to select.

That dropsy is an obstinate disease, no one need doubt; but that it should prove an incurable one, unless in a far gone case, we must certainly ascribe to ignorance, or neglect of the proper means. I have often, in the course of my experience, seen dropsies, as well as other diseases, which had been condemned as incurable, by physicians whose large pretensions seem to place them above shame, cured, notwithstanding all this, by the judicious use of such remedies as may be found in this book. And it may not be amiss here to remark, that botanic physicians, who understand their business, should pay little regard to these *regular* condemnations, as they are generally far from being decisive, or infallible, if the proper means are made use of to restore the patient.

PALSY.

Palsy is a loss or diminution of sense or motion, or both, in one or more parts of the body. Of all the affections called nervous, this is the most suddenly fatal. It is more or less dangerous, according to the importance of the part affected. A palsy of the heart, lungs, or any part necessary to life, is mortal. When it affects the stomach, the intestines, or the bladder, it is highly dangerous. If the face be affected, the case is bad, as it shows that the disease proceeds from the brain. When the part affected feels cold, is insensible, and wastes away, or when the judgment and memory begin to fail, there is small hope of a cure.

In some instances, the disease is confined to a particular part or set of muscles; but it more usually happens, that one entire part of the body, from the head downward, is affected. When the spinal marrow is injured, all the parts below the injury become insensible.

CAUSES.—A sudden shock, or any thing that prevents the regular exertion of the nervous power upon any particular muscle, or part of the body. The occasional and predisposing causes are various, as drunkenness; wounds of the brain, or spinal marrow; pressure upon the brain, or nerves; very cold or damp air; the suppression of the customary evacuations; sudden fear; want of exercise; or whatever greatly relaxes the system, as drinking much tea, or coffee. Palsy may likewise proceed from wounds of the nerves themselves, or from the poisonous fumes of metals, as mercury, lead, arsenic, &c.

When a palsy attacks any vital part, such as the brain, heart, or lungs, it soon terminates fatally. When it arises in consequence of an apoplexy, it

is more difficult of cure. Paralytic affections of the lower extremities, ensuing from injury done to the spinal marrow, by blows, and other accidents, are sometimes incurable. Partial, and sometimes entire, palsy of the lower extremities, seem to proceed from a swelling and displacement of the womb, in females. [They frequently have no control over their bladder or rectum, nor their lower extremities.]

SYMPTOMS.—Flaccidity of the parts, a diminished sensation in, or incapacity of moving them; distortion of the muscles, tremors, wasting of the part, involuntary tears, and despondency.

THE CURE.—The regimen must be pointed out from the cause. In young persons of a full habit, the palsy must be treated in the same manner as the sanguine apoplexy. The patient must be bled, blistered, and his body opened by sharp clysters and purgative medicines. Electricity and friction are also proper; and if the fluids appear too vitiated, alterative and cleansing medicines should be administered.

But in old age, or when the disease proceeds from relaxation or debility, (which is generally the case,) a quite contrary course must be pursued. The diet must be solid, warm, and invigorating, seasoned with spicy and aromatic vegetables, as mustard, horse-radish, &c. The drink may be generous wines, mustard whey, or brandy and water. Friction with the flesh-brush, a warm hand, or flannel, even to inflammation, night and morning, should not be omitted. The parts may then be bathed with oil of amber; this, with a large blister applied to the sacral bone and region of the loins, has recovered many who had lost the use of their lower extremities. Heating stimulants, as tincture of Spanish flies, a strong tincture of zanthoxylum, or cayenne pepper, galangal root, or spirits of turpentine, mustard and horse-radish, may be freely used for bathing the palsied parts. Electricity should be thoroughly tried, at least, for it has often been attended with the happiest effect.

A stimulating drink may be made of mustard seed, horse-radish, cayenne pepper, galangal, zanthoxylum, prickly ash, grains of paradise, angelica, pleurisy root, ginger, guaiacum, or spirits of turpentine, &c. These may all be tinctured with valerian, or some other nervine, which are peculiarly proper in the palsy.

Preparations of iron are very necessary, especially if the patient be debilitated. Cold bathing is also beneficial.

When the disease affects several different parts of the body, stimulants, both externally and internally, become more necessary. Vomits are very beneficial in this kind of palsy, and ought to be frequently administered. Cephalic or sneezing snuff is likewise of use. If the tongue be affected, the patient may gargle his mouth frequently with brandy and mustard.

Although in every instance a dangerous disease, palsy, particularly at an advanced period of life, is sometimes removed by the occurrence of a diarrhœa or fever. A feeling of warmth, and a slight pricking pain, as if stung by ants, in the part affected, with returning sensation and motion, are favorable symptoms.

Exercise is of the utmost importance in the palsy; but the patient must beware of cold, damp, moist air. He ought to wear flannel next his skin.

COSTIVENESS.

We do not mean to treat here of that costiveness or astriction of the bowels, which is symptomatic of other diseases; but of that infrequency of stools, which sometimes happens, unconnected with any other disease.

Costiveness may proceed from drinking rough red wines or other astrin-

gent liquors; too much or too little exercise; a long use of cold, insipid food, which does not sufficiently stimulate the intestines. Sometimes it is owing to the bile not descending to the intestines, as in the jaundice; and at other times it proceeds from diseases of the bowels, as a palsy, spasms, tumors, and inactive state of the intestines, &c.

Another cause I am compelled to add, and one which I believe produces more costiveness and inactivity of the bowels than all other causes put together, and that is, *the use of mercury and other mineral medicines.*

Excessive costiveness is apt to occasion pains of the head, vomiting, colics, and other complaints of the bowels. It is peculiarly hurtful to hypochondriac and hysteric persons, as it generates wind and other grievous symptoms. Some people bear costiveness to a great degree.

Persons who are generally costive, should live upon a moistening and laxative diet; as roasted or boiled apples, pears, raisins, gruels, with currants, butter, honey, and such like. Broths, with smallage, leeks, and other soft pot herbs, are likewise proper. Mucilaginous herbs, as slippery elm, flaxseed, comfrey, and the like, are proper. Rye bread is preferable to wheat. No person troubled with costiveness should eat wheat bread alone, especially that made of fine flour.

Costiveness is increased by keeping the body too warm, and by everything that promotes perspiration, as wearing flannel, lying too long in bed, &c. Intense thought and a sedentary life, are likewise hurtful. All the secretions and excretions are promoted by moderate exercise without doors, and by a gay, cheerful, and sprightly temper of mind.

The drink should be of an opening quality. All ardent spirits and astringent wines, as port and claret, ought to be avoided. Malt liquor, that is fine, and of a moderate strength, is very proper. Buttermilk, whey, and such like, are proper, and may be drank in turns, as the patient's inclination directs.

When the body cannot be kept open by laxative diet, clysters should be resorted to. The patient should procure a large syringe, and use it, with molasses and water, every morning after breakfast, and make an attempt at stool, whether he has any inclination or not. By observing this regularity in going to stool, a habit is soon established, and after a time a daily evacuation of the bowels may be procured without the use of the syringe.

Golden seal root, infused in wine or brandy, and drank as bitters, is a most excellent medicine in this complaint. It is not only very strengthening to the stomach, but is also laxative, without weakening. The following mixture has often cured costiveness: Infuse one ounce of rhubarb, half an ounce rust of iron, and a quarter of an ounce of cloves, in a quart of good wine, and drink a wine glass full two or three times a day. Jellies and other warming and strengthening medicines, made slightly laxative, are appropriate.

Active physic should never be used in this complaint, unless the bowels have been so long closed as to render it absolutely necessary. A constant use of physic for costiveness is extremely foolish, as it is continually increasing the debility of the bowels, which is the cause of the disease. When physic must be taken, let it be rhubarb, which is not so weakening.

WANT OF APPETITE.

This may proceed from a foul stomach, indigestion, the want of free air and exercise, grief, fear, anxiety, or any of the depressing passions, excessive heat, the use of any thing that pall the appetite, or is hard of digestion, strong liquors, tea, tobacco, opium, mineral medicines.

The patient ought, if possible, to make choice of an open dry air; to take

daily exercise on horseback or in a carriage; to rise early, and avoid all intense thought, excessive heat, and great fatigue.

If want of appetite proceed from any other disease, that must be attended to; if from errors of diet it ought to be changed. If nausea and retchings show that the stomach is loaded with crudities, a vomit will be necessary. After this, a gentle purge or two of rhubarb will be proper. The patient ought next to use some of the stomachic bitters infused in wine, or the tonic mixture; in some cases of weak stomachs, the elixir vitriol will very soon create an appetite. If the stomach is inclined to sourness, or fermentation, lime-water, or the sal æratus and rhubarb mixture, become necessary.

A want of appetite and loathing is not usually an original affection, but prevails as a symptom of some other disease, such as indigestion, and is therefore to be obviated by aromatics, bitters, iron, elixir vitriol, and other acids. In spontaneous loss of appetite, when the stomach is loaded with bile, an emetic in the evening with some kind of stomachic purgative next morning, will generally effect a cure.

HEARTBURN.

What is commonly called heartburn, is not a disease of that organ, but a painful sensation of heat and sourness about the pit of the stomach.

It may proceed from debility of the stomach, indigestion, bile, the superabundance of acid in the stomach; steams arising from too rapid a fermentation; drinking stale beer, wine, or any fermented liquor.

SYMPTOMS.—Sour belchings, a hot burning pain at, and above the pit of the stomach, nausea; vomiting soon after meals, of a greasy, inflammable phlegm; spasms in the stomach and bowels, the rising of water in the mouth, sickness soon after rising from bed, and wind.

It is never dangerous, but extremely troublesome; if it is suffered to continue long, it may occasion head-ache, dizziness, and convulsions of all sorts.

Alkalies are peculiarly valuable in the heartburn, first making use of such evacuations as are necessary. If the stomach is weak, which is usually the case, give strengthening bitters. Absorbents, as magnesia, are proper; this may be taken in mint water, a large tea spoonful is the usual dose.

When the patient is troubled with hot fumes, and vomiting after meals, the sal æratus and rhubarb mixture may be depended on pretty certainly for relief. This may be tinged with peppermint, or wintergreen.

As pregnant women are very subject to this uneasy sensation, they should first consider whether it proceeds from any of the causes above explained; in which case the medicines prescribed will probably remove it. But if the internal sense of heat be owing to the state of pregnancy itself; if it arises from the connexion between the stomach and the womb, and is not accompanied with much spitting or any acrid eructations, the white of an egg, mixed with a little sugar and water, will often afford the only relief that can be expected for some time.

PALPITATION OF THE HEART.

This is owing to plethora; to a deficiency of nervous influence, or a disproportionate influx of it; weakness of the blood, acid gas, spasms, &c.

TREATMENT.—The general cause, whatever it is, must be removed. To relieve the palpitation, and regulate the action of the heart and arteries, give anti-spasmodics; as stramonium, castor, camphor, valerian, &c.

NERVOUS DISEASES.

Of all the diseases incident to mankind, those of the nervous kind are the most complicated and difficult to cure. A volume would be insufficient to point out their various appearances. They imitate almost every disease, and are seldom alike in two different persons, or even the same person at different times. They are continually changing shape, and upon every fresh attack the patient thinks he feels symptoms he never experienced before. Nor do they affect the body only; the mind likewise suffers, and is often thereby rendered extremely weak and peevish. The low spirits, timorousness, melancholy, and fickleness of temper, which generally attend nervous disorders, induce many to believe that they are entirely diseases of the mind; but this change of temper is rather a consequence than the cause of nervous diseases.

CAUSES.—Every thing that tends to relax or weaken the body, disposes it to nervous diseases, as indolence, profuse venery, impotence, drinking too much tea, or other weak and watery liquors, warm; frequent bleeding, purging, and the use of metallic medicines. Whatever hurts the digestion and prevents the proper assimilation of food, has likewise this effect; as long fasting, excess in eating or drinking, the use of windy, crude, or unwholesome aliments, an unfavorable posture of the body, &c.

Nervous disorders often proceed from intense application to study. Indeed few studious persons are entirely free from them. Nor is this at all to be wondered at; intense thinking not only preys upon the spirits, but prevents the person from taking proper exercise, by which means the digestion is impaired, the nourishment prevented, the solids relaxed, and the whole mass of humors vitiated. Grief and disappointment likewise produce the same effects. Many nervous people date their disorder from the loss of a husband, a favorite child, or from some disappointment in life. In a word, whatever weakens the body, or depresses the spirits, may occasion nervous disorders; as unwholesome air, want of sleep, great fatigue, disagreeable apprehensions, anxiety, vexation, &c. Many young men, particularly in cities, by dissipating and living too fast, bring on a premature old age, attended with a long train of nervous complaints.

SYMPTOMS.—It would be impracticable to enumerate the whole. They generally begin, however, with windy inflations or distensions of the stomach and intestines; the appetite and digestion are usually bad; yet sometimes there is an uncommon craving for food and a quick digestion. The food often turns sour on the stomach, and the patient is troubled with vomiting of clear water, tough phlegm, or a blackish colored liquor resembling the grounds of coffee. Excruciating pains are often felt about the navel, attended with a rumbling or murmuring noise in the bowels. The body is sometimes loose, but more commonly bound, which occasions a retension of wind and great uneasiness.

The urine is very irregular, sometimes being small in quantity, and at other times very copious and quite clear. There is a great tightness of the chest, with difficulty of breathing; violent palpitations of the heart; sudden flushings of heat in various parts of the body; and at other times a sense of cold as if water were poured on them; flying pains in the back and limbs; pains in the back and abdomen, resembling those of gravel; the pulse very variable; yawning, hiccup, frequent sighing, and a sense of suffocation as if from a ball or lump in the throat; alternate fits of crying and convulsive laughing; the sleep unsound, and seldom refreshing; nightmare.

As the disease increases, the patient is molested with dizziness, fainting, head-aches, cramps, and fixed pains in the various parts of the body; the eyes are clouded and often affected with pain and dryness; there is a noise

in the ears, and often a dulness of hearing; in short the whole animal functions are impaired, the mind is disturbed on the most trivial occasions, and is hurried into the most perverse commotions, inquietudes, terror, sadness, anger, diffidence, &c. The patient is apt to entertain wild imaginations and extravagant fancies; the memory becomes weak, and the judgment fails.

Nothing is more characteristic of this disease than a constant dread of death. This renders those unhappy persons who labor under it, peevish, fickle, impatient, and apt to run from one physician to another; which is the reason why they seldom reap any benefit from medicine, as they have not sufficient resolution to persist in any one course till it has come to produce its proper effects. They are likewise apt to imagine that they labor under diseases from which they are quite free, and are very angry if any one attempts to set them right, or laugh them out of their ridiculous notions.

REGIMEN.—Persons afflicted with nervous diseases ought never to fast long. Their food should be solid and nourishing, but of easy digestion, such as milk, meat broths, strong soups, jellies, eggs, all sorts of shell-fish, as lobsters, crabs, oysters, &c., flat fish, eels; every species of wild fowls; any animal food taken in large quantities and often repeated. He should abstain from vegetables, fruit, and malt liquor.

Heavy sauces are hurtful. All excess should be carefully avoided. They ought never to eat more at a time than they can easily digest; heavy suppers are to be avoided. If they feel themselves faint and weak between meals, they ought to eat a bit of bread, and drink a glass of wine. Though wine in excess enfeebles the body, yet taken in moderation it strengthens the stomach and promotes digestion. Every thing that is windy and hard of digestion must be avoided. All weak and warm liquors are hurtful, as tea, coffee, punch, &c. Above all things, drams are to be avoided. Whatever immediate ease the patient may feel from the use of ardent spirits, they are sure to aggravate the malady and prove certain poisons at last.

Exercise in nervous disorders is superior to all medicines. Riding on horseback is far the best, as it gives motion to the whole body, without fatiguing it, strengthens the blood and raises the spirits. This should never be neglected if the patient is able to bear it. He should take a two or three hours' jaunt every morning. Walking, however, agrees better with some persons, and others may be more benefitted by riding in a carriage. Every one ought to use that which he finds most beneficial. Sea voyages, also, have an excellent effect. Even change of place, and sight of new objects, by diverting the mind, have a great tendency to remove these complaints. For this reason a long journey is of much more advantage than a short one.

A cool dry air is proper, as it braces and invigorates the whole body. Few things tend more to relax and enervate than hot air, especially that which is rendered so by great fires, or stoves. But when the stomach or bowels are weak, the body ought to be well guarded against cold, especially in winter, by wearing flannel next the skin. This will keep up an equal perspiration, and defend the alimentary canal from many impressions to which it would otherwise be subject upon every sudden change from warm to cold weather. Rubbing the body frequently with a flesh brush or coarse cloth, is likewise beneficial. Persons who have weak nerves ought to rise early, and take exercise before breakfast, such as digging in a garden, than which nothing can be better: lying too long in bed cannot fail to relax the system. They ought likewise to be diverted, and kept as easy and cheerful as possible. There is not any thing which hurts the nervous system, or weakens the digestive powers, more than fear, grief, or anxiety.

That any disease should require such nice precautions, both of mind and body, may appear rather frivolous to the hardy farmer, or to the man who

labors out of doors. But although they are unaccustomed to such complaints, they do exist, nevertheless, and to a great extent, in cities, particularly among those who have exhausted their constitutions in dissipation. The physician must, if possible, gain the confidence of the hypochondriac patient, for without it he may endeavor, but in vain, to relieve him. If necessary he must indulge him in his whims, however ridiculous, and pretend to agree with him in his opinion about his complaints, use stratagem, or any way to keep his mind at ease, raise his spirits, and keep him in the use of medicine long enough to have it take effect.

MEDICINE.—When the patient is costive, he ought to make use of injections, as directed in costiveness. This, although it may at first appear irksome, is attended with little trouble and great benefit. If purgatives become necessary, however, they should be of the mildest kind, as rhubarb, or some laxative and strengthening preparation. The golden seal root, being both of a stomachic and laxative quality, is extremely appropriate in this case.

Warming, stimulating, strengthening, and nervine medicines are necessary in hypochondriac complaints. When the digestion is bad, and the stomach is relaxed or weak, the following bitters may be used with advantage, first giving an emetic if it appears necessary :

Take of colombo root an ounce; gentian root, orange peel, and caraway seeds, each half an ounce, and valerian, or lady slipper, an ounce; let all these ingredients be bruised in a mortar, and infused in a bottle of brandy, rum, or cider brandy, for the space of five or six days. A table spoonful may be drank in a glass of water, an hour before meals.

Or, the following, which will not disappoint expectation :

Balm of Gilead buds, black cherry bark, colombo root, dog-wood or box-wood bark, or blossoms, unicorn root, and valerian, all to be boiled in water down to a syrup, strained and sweetened, with sufficient spirits added to preserve it : dose, as much as the stomach will bear, two or three times a day.

Or, an infusion of horse-radish, valerian tea, and ginger; or the “balsam of life;” the tonic mixture, the clove jelly, iron and myrrh pills, &c. The valerian, or some similar fœtid anti-spasmodic, is highly necessary in this disorder, and should form a part of all medicinal compounds prescribed for it.

The following articles are suitable for this disease, and may be compounded according to the choice of the physician : valerian, lady slipper, angelica, golden seal, cloves, unicorn, horse-radish, ginger, gentian, calamus, pleurisy root, whitewood bark, colombo, caraway, balm of Gilead, iron, myrrh, cayenne, skunk cabbage, crawley, castor, motherwort, dogwood, cohush, galan-gal, &c.

Few things tend more to strengthen the nervous system than cold bathing. This practice, if duly persisted in, will produce very extraordinary effects; but when the liver or other viscera are obstructed, or otherwise unsound, the cold bath is improper. It is therefore to be used with caution. It will be sufficient, especially for persons of a spare habit, to go into the cold bath three or four times a week. If the patient be weakened by it, or feels chilly for a long time after coming out of it, it is improper.

ST. VITUS' DANCE.

This disease is an involuntary, yet irresistible motion of the several muscles. The patient uses many ridiculous and antic gestures; and what is very singular, those muscles only are affected which are destined for spontaneous motion, for the heart, diaphragm, lungs and stomach are never in-

jured by this disorder. It generally attacks young people, from the eighth year of their age to the time of puberty.

CAUSES.—An unequal distribution of the nervous influence. This is often owing to an obstructed menstruation, green sickness, acid gas, worms, blows, weakness of solids.

SYMPTOMS.—The first symptom is generally a slight lameness of one leg, which the patient drags a little and seems to have lost the power of regulating its motion. The arms next become affected, and are thrown into various contortions, which deprive persons affected with this disease of the power of feeding themselves, and their awkward gesticulations in attempting to bring articles of food towards their mouths, appear ridiculous. One side of the body is generally more affected than the other. The tongue is so much affected as to render articulation nearly unintelligible. If the disease continue long, it materially injures the constitution, sleep becomes disturbed, or is in a great measure prevented, the mental faculties are impaired and revert to childishness; pain is often felt in the stomach, the appetite for food is extremely irregular, being occasionally ravenous, the countenance appears pale and languid, and the body and limbs are much emaciated.

It is most common to females before puberty; menstruation generally cures it. I have seen many cases of this sort, but never one that was difficult of cure. When of long continuance, it sometimes degenerates into an epilepsy.

[I have seen three cases of this disease which occurred in females who were in the latter stages of pregnancy. One of these patients had a cushioned chair made in which she always sat until she was confined. These patients all recovered after their confinement.]

THE CURE.—As *weakness of the solids* is an inseparable concomitant of this distemper, the regimen must be adapted to it; that is, solid and nourishing, with proper exercise.

Begin the cure with a vomit, which should be repeated twice or thrice a week, till the patient is recovered, except in pregnancy. A purge may also be administered occasionally, according to circumstances. Some recommend continual heavy purges as a remedy. This, however, does not appear to be the safest or most efficacious method.

If worms are suspected, vermifuges may be given.

Chalybeates, as the tonic mixture, iron and myrrh pills, &c., together with strengthening bitters, are proper for a general medicine. Nervines or anti-spasmodics must not be neglected; as tincture of valerian, lady-slipper, castor, assafoetida, skunk-cabbage, &c., some one of which should be taken continually. Alkalies, balsams, and aromatics may also become beneficial. Ginger, horse-radish, and pleurisy-root are also extremely applicable.

The cold bath is very serviceable in this disorder.

[In some cases this disease is incurable. I once knew a man who had been suffering from this disease for thirty years, and yet enjoyed very good health in other respects.]

CRAMP IN THE STOMACH.

This disorder often seizes people suddenly, is very dangerous, and requires immediate assistance. It is most incident to persons in the decline of life, especially the nervous, gouty, hysteric, hypochondriac and intemperate.

If the patient has an inclination to vomit, give him draughts of warm water, or weak camomile tea, to cleanse his stomach. After this, if he has

been costive, a laxative clyster may be given. He ought then to take laudanum. The best way of administering this is in a clyster; sixty or seventy drops may be administered in a clyster of warm water. This is more certain than laudanum given by the mouth, which is often vomited, and increases the spasms. The lobelia emetic is recommended by some to be very effectual, giving quick relief. The high cranberry bark, also called cramp bark, in tea, is very good in all kinds of cramps.

If the pain and cramp return with great violence, after the effects of the anodyne clysters are over, another with an equal or larger quantity of opium may be given; and every four or five hours, ten or twelve grains of musk, or other anti-spasmodics may be given. In the meantime the stomach ought to be fomented with cloths dipped in warm water, or bladders filled with warm milk and water, should be constantly applied to it.

In very violent and lasting pains of the stomach, or if they proceed from stoppage of the menses, the feet and legs should be bathed in warm water, and draughts applied. If they be owing to the gout, recourse must be had to spirits and cordials.

SARDONIC LAUGH.

This disease is principally characterized by a fit of laughter, arising without any evident cause, and often continuing in a very violent degree for three or four nights, so far as to prevent the patient from sleeping. By its duration in this way, great debility is induced, accompanied with frequency of pulse, and other febrile symptoms, at which time it either proves fatal by its violence, or ceases spontaneously.

For the removal of this disease, anti-spasmodics and diaphoretics seem to be most proper.

SWOONING, OR FAINTING.

Persons of weak nerves, or delicate constitutions, are liable to swoonings, or fainting fits. These, indeed, are seldom dangerous when duly attended to; but when wholly neglected, or improperly treated, they often prove hurtful, and sometimes fatal.

The general causes of swoonings are, sudden transitions from cold to heat; breathing air that is deprived of its oxygen, or proper spring or elasticity; great fatigue; excessive weakness; loss of blood; long fasting; fear, grief, and other violent passions or affections of the mind; sudden fright, &c.

It is well known, that persons who have been long exposed to cold, often faint, or fall into a swoon upon coming into a warm house, especially if they drink hot liquor, or sit before a large fire. This might easily be prevented by people taking care not to go into a warm room immediately after they have been exposed to the cold air, to approach the fire gradually, and not to eat or drink any thing hot, till the body has been gradually brought into a warm temperature.

When any one, in consequence of neglecting these precautions, falls into a swoon, he ought immediately to be removed to a colder apartment, to have ligatures applied above his knees and elbows, and to have his hands and face sprinkled with vinegar or cold water. He should likewise be made to smell vinegar, and should have a spoonful or two of water, if he can swallow, with about a third part of vinegar mixed with it, poured into his mouth. If these should not remove the complaint, it may be necessary to bleed, and afterwards to give him a clyster.

As the air that is breathed frequently loses its elasticity and spring, it is no wonder that persons who respire in it, often fall into a swoon, or fainting fit. They are in this case deprived of the very principle of life. Hence it is, that fainting fits are so frequent in all crowded assemblies, particularly in hot seasons. Such fits, however, must be considered as a kind of temporary death; and to the weak and delicate they sometimes prove fatal. They ought, therefore, with the utmost care to be guarded against. Let churches and other places of public resort be large and well ventilated.

A person who faints in such a situation, ought immediately to be carried into the open air; his temples should be rubbed with strong vinegar or brandy, and volatile spirits, or salts, held to the nose. He should be laid upon his back, with his head low, and have a little wine, or some other cordial, as soon as he is able to swallow it, poured into his mouth. If the person has been subject to hysteric fits, castor or assafœtida should be applied to the nose, or burnt feathers, horn, leather, &c.

When fainting proceeds from mere weakness or exhaustion, which is often the case after great fatigue, long fasting, loss of blood, or the like, the patient must be supported with generous cordials, as jellies, wine, spirituous liquors, and the like. These, however, must be given in very small quantities at first, and increased as the patient is able to bear them. He ought to be allowed to lie quite still and easy upon his back, with his head low, and should have fresh air admitted into his chamber. His food should consist of gruel with wine, new milk, and other things of a light and cordial nature. These things are to be given out of the fit. All that can be done in the fit is to let him smell volatiles, and rub his temples with warm brandy or vinegar.

In fainting fits that proceed from fear, grief, or other violent passions or affections of the mind, the patient must be very cautiously managed. He should be suffered to remain at rest, and allowed to smell vinegar. After he is come to himself, he may drink freely of warm lemonade, balm, or mint tea. It will likewise be proper, if the fainting fit have been long and severe, to cleanse the bowels by throwing in an emollient clyster.

FLATULENCY, OR WIND.

Flatulencies are, of all disorders, the most common, and have, perhaps, the least attention paid to them, notwithstanding that few persons are free from some disagreeable circumstances arising from wind. All nervous patients, without exception, are afflicted with wind in their stomach and bowels, which arise from the want of tone and vigor in these organs. Crude flatulent aliment, as green peas, beans, cabbages, and the like, may increase this complaint; but strong and healthy people are seldom troubled with wind, unless they overload their stomachs, or drink liquors in a fermenting state, and consequently full of elastic air. While, therefore, the wind proceeds from the aliments, the cause which makes air separate from them in such quantity as to occasion complaints, is almost always a fault of the bowels themselves, which are too weak, either to prevent the production of elastic air, or to expel it after it is produced.

To relieve this complaint, such medicines ought to be used as have a tendency to expel wind, and, by strengthening the alimentary canal, to prevent its being produced there.

SYMPTOMS.—Breaking wind, upwards and downwards, belchings, pain in the stomach, rumbling noise in the bowels, loss of appetite, heartburn, sour breath, sensations of pent up wind, bad taste in the mouth, swelling at the pit of the stomach and of the whole abdomen; difficulty of breathing,

head-ache, sensation of fulness after eating, nausea, obstructed bile, costiveness, passing of worms or slime, spasms of the urinary vessels, obstruction of the menses, and sometimes diarrhœa. It is almost an inseparable complaint of all bilious and gravelly affections.

CURE.—The predominant acid in the stomach is to be corrected and destroyed by emetics and alkalies; the wind is to be expelled by proper carminatives, nervines, &c.; the bowels to be kept open by clysters and laxatives, and the stomach and bowels to be strengthened by bitters, tonics, &c. A milk diet, morning and evening, is very advisable: animal food and spirits diluted with water, may be used safely, and the warmer any liquid is drank the better. Abstinence from fruit, vegetables, malt and other fermenting liquors are indispensibly necessary.

The medicines I have found particularly efficacious in expelling wind, are, first pleurisy root, in powder, a tea spoonful every twenty minutes till relieved, and afterward continued as occasion may require. Bayberry, angelica, sweet flag, ginger, cayenne pepper, caraway, galangal, valerian, crawley, horse-radish, mustard, clove jelly, peppermint, white wood, &c.

Afterwards, or at the same time, give tonics and strengthening bitters, which may be of a slightly laxative nature, but not weakening; if the bowels cannot be kept regular with this, clysters must be used.

LOW SPIRITS.

This disease is also known by the name of vapors. It is a certain state of the mind, accompanied with dyspepsia, in which the greatest evils are apprehended upon the slightest grounds, and the worst consequences imagined from any unusual feeling, even of the most trifling kind; and as regards these apprehensions and feelings, there is always the most obstinate belief and persuasion.

All who have weak nerves are subject to low spirits, in a greater or less degree. If carminatives, or bitters, are indicated, give them; and in addition, generous diet, the cold bath, exercise and amusements, are the most likely means of removing this complaint.

HYSTERIC AFFECTIONS.

These likewise belong to the numerous tribe of nervous diseases. Women of a delicate habit, whose stomachs and intestines are relaxed, and whose nervous system is extremely sensible, are most subject to hysteric complaints. In such persons a hysteric fit may be brought on by irritation of the nerves of the stomach or intestines, by wind, acrid humor, or the like. A sudden suppression of the menses often gives rise to hysteric fits. They may likewise be excited by violent passions or affections of the mind, as grief, fear, anger, or great disappointments. It appears under various shapes, imitates so many other diseases, and is attended with such a variety of symptoms, that is difficult to give a just character or definition of it; and it is only by taking the aggregate of its appearances, that a proper idea of it can be conveyed to others.

Sometimes the hysteric fit resembles a swoon or fainting fit, during which the patient lies as in a sleep, only the breathing is so low as scarcely to be perceived. At other times the patient is affected with catchings and strong convulsions. The symptoms which precede hysteric fits, are likewise various in different persons. Sometimes the fit comes on with coldness of the extremities, yawning and stretching, lowness of spirits, oppression and anxi-

ety. At other times the approach of the fit is foretold by a feeling as if there was a ball in the abdomen, which gradually rises towards the stomach, where it occasions inflation, sickness, and sometimes vomiting; afterwards it rises into the throat, and occasions a degree of suffocation, to which quick breathing, palpitation of the heart, giddiness of the head, dimness of the sight, loss of hearing, with convulsive motions of the extremities and other parts of the body, succeed. The hysteric paroxysm is often induced by an immoderate fit of laughing, and sometimes it goes off by crying. Indecent expressions and actions frequently accompany the fits.

If the patient has been long troubled with them, they often end in a perpetual and causeless timidity; madness, or all the horrors of the hypochondriacal affection, to which this disorder is very similar. It is by no means dangerous.

CURE.—If the stomach appears to be loaded, emetics, frequently repeated, succeed wonderfully. Lobelia is very suitable, as it is also anti-spasmodic. All other evacuations are hurtful.

In the fit give opium and castor, two grains of the former and four of the latter. This may be repeated in an hour or more, according to the urgency of the case. Also, endeavor to rouse the patient by strong smells, as burnt feathers, assafœtida, or hartshorn, held to the nose. Hot bricks may also be applied to the soles of the feet, and the legs, arms and abdomen may be rubbed with a warm cloth; or put the feet and legs in warm water. In case of costiveness, a clyster, with assafœtida, will be proper; and as soon as the patient can swallow, the mother's cordial, or a decoction of cramp or cranberry bark, or other opening and relaxing drink should be given.

The radical cure of this disease will be best attempted when the patient is out of the fit. For this purpose, a milk and vegetable diet should be made use of, and properly persisted in. Tonics, bitters, iron, and anti-spasmodics, are indicated. If the patient is much subject to cramps, or even if not, the mother's cordial should be used continually as occasion requires. Ginger, an eighth of an ounce, taken night and morning, is very beneficial. Cold bathing, and every thing that braces and strengthens the nerves and whole system, is useful. The mind should be kept cheerful and easy, if possible, and always engaged in some interesting pursuit.

If the head is much affected with pain, the anodyne wash, or some similar soothing application, is necessary.

GOUT.

The gout is a disease most commonly affecting the feet and hands. Excess and idleness are the true sources whence it originally sprung, and all who would avoid it must be active and temperate.

[This disease generally attacks persons of a lymphatic temperament, who indulge extravagantly in the luxuries of the table, which renders them extremely obnoxious to this affection.]

Though idleness and intemperance are the principal causes of the gout, yet many other things may contribute to bring on the disorder in those who are not, and to induce a paroxysm in those who are subject to it; as intense study, excess of venery, too free a use of acidulated liquor, night watching, grief or other uneasiness of mind; an obstruction or defect of any of the customary evacuations, as the menses, sweating of the feet, perspiration, &c.

SYMPTOMS.—A fit of the gout is generally preceded by indigestion, drowsiness, a slight head-ache, sickness, and sometimes vomiting. The patient

complains of weariness and dejection of spirits, and has often a pain in the limbs, with a sensation as if wind or cold water were passing down the thigh. The appetite is often remarkably keen a day or two before the fits, and there is slight pain in passing the urine, and frequently an involuntary shedding of tears. Sometimes these symptoms are much more violent, especially upon the approach of the fit; and it has been observed, that as is the fever which ushers in the gout, so will be the paroxysm; if the fever be short and sharp, the fit will be so likewise; if it be feeble, long, and lingering, the fit will be such also. But this observation can hold only with respect to very regular fits of the gout.

The regular gout generally makes its attack in the spring, or beginning of winter, in the following manner: about two or three o'clock in the morning, the patient is seized with a pain in his great toe, sometimes in the heel, and at other times in the calf of the leg. This pain is accompanied with shivering and some degree of fever. Afterwards the pain increases, and fixing among the small bones of the foot, the patient feels all the different kinds of torture, as if the parts were stretched, burnt, squeezed, gnawed, or torn in pieces. The part at length becomes so exquisitely sensible, that the patient cannot bear to have it touched, or even suffer any person to walk across the room.

The patient generally is in exquisite torture for twenty-four hours, from the time of the coming on of the paroxysm, unless relieved; he then becomes easier, the part begins to swell, appears red, and is covered with a little moisture. Towards morning he drops asleep, and generally falls into a gentle perspiration. This terminates the first paroxysm, a number of which constitutes a fit of the gout; which is longer or shorter, according to the patient's age, strength, the season of the year, and the disposition of the body to the disease.

The patient is always worse towards night, and easier in the morning. The paroxysms, however, generally grow milder every day, till at length, the disease is carried off by perspiration, urine, and the other evacuations. In some patients this happens in a few days; in others, it requires weeks, and in some, months, to finish the fit. Those whom age and frequent fits of the gout have greatly debilitated, seldom get free from it before the approach of summer, and sometimes not till it be pretty far advanced.

If hereditary it is most difficult to relieve. It is generally supposed to be incurable, as all disorders are said to be which we know not *how* to cure. The fits may be rendered milder, and, perhaps, totally prevented, by pursuing the following method. It has succeeded in the removal of many inveterate gouts, though they were of long standing, and had been every year increased:

CURE.—Let the patient live wholly on animal food, or use a milk diet, and for change take meat broths. He may drink plentifully too of milk whey; but must abstain from all vegetables, claret, and malt liquors; spirits diluted with water will not hurt him. Exercise is absolutely necessary, and too much cannot be taken; nor can it be too often repeated, if it does not proceed to fatigue. The mind should be kept as calm and composed as possible; amusement and a little dissipation of thought is necessary. Those who have been accustomed to live high, however, must not retrench too suddenly.

In the fit, the most efficacious means of discharging the gouty matter, is by perspiration, which seems to be the object of nature. The foot, or affected part, should be bathed with the anodyne wash, warmed, gently at first, and afterwards rubbing harder, continuing to increase the friction for the space of half an hour, by which time the patient will bear it very well, and feel greatly relieved of pain. He should then get into bed, and have the

spirit vapor bath conveyed to the gouty part, wherever it is, by tubes. This should be applied as warm as the patient can bear it, and kept up an hour or more. This will create a profuse perspiration from the swelled part, which, by throwing out the gouty particles, gives astonishing relief. I have often witnessed cases where, with this treatment, the patient has been transported from the most racking tortures of this disorder into a sweet sleep in the course of two hours.

While the above treatment is in operation, the patient should take internally, diaphoretics, carminatives, and anodynes, as the fever powders, which are of singular service, relaxing the system and giving ease; or Dover's powder and other diaphoretics; strong cordials and spirits; saffron and other stimulants to guard the stomach.

If the paroxysm should threaten a return, let this treatment be repeated as often as necessary; in the morning applying the anodyne wash freely wherever there is pain. When the pain is very great, and the patient restive, he may take from thirty to forty drops of laudanum, more or less, according to the violence of the symptoms. This may be taken at bed time.

After the fit is over, the patient ought to take a gentle dose of rhubarb, or some warm stomachic purge. He should also drink a weak infusion of stomachic bitters, in wine or ale, as the colombo root, golden seal, Virginia snake root, with cinnamon, sweet flag, &c. The diet at this time should be light and nourishing, and gentle exercise ought to be taken on horseback or in a carriage.

All cold external applications that repel the matter, are to be avoided as death. They do not cure the disease, but remove it from a safer to a more dangerous part of the body, where it often proves fatal. A fit of the gout is to be considered nature's method of removing something that might prove destructive to the body, and all we can do with safety, is to promote her intentions and assist her in expelling the enemy in her own way. Evacuations by stool, are to be used with extreme caution; they do not remove the cause of the disease; and sometimes by weakening the patient, prolong the fit; but where the constitution is able to bear it, it will be of use to keep the bowels gently open by diet or very mild laxative medicines.

Out of the fit, it is in the patient's power to do many things towards removing the cause, and preventing a return of the disorder. This may be attempted both by medicine and by exercise. The medicine should be of a cleansing, detergent, and stimulating quality; as the anti-mercurial syrup, and other cleansing syrups. To these may be added alkalies and tonics, as necessary. These medicines must be persevered in for a considerable time, to effect the necessary change in the system. At best, it is a work of time to entirely eradicate this disease; and I believe it has been the want of perseverance in the use of the proper remedies, that has caused the general opinion that gout is incurable.

In addition to the medical treatment, and which is not inferior in consequence, two other things are very necessary to be observed, viz.: In the first place, universal temperance. In the next place, sufficient exercise. By this we do not mean sauntering about in an indolent manner, but labor, sweat, and toil. These only can render the humors wholesome, and keep them so. Going early to bed and rising betimes, are also of great importance. It is likewise proper to avoid night studies, and intense thinking. The supper should be light and taken early. The use of milk, gradually increased till it becomes the principal article of diet, is particularly recommended. All strong liquors, and especially astringent wines, and sour punch are to be avoided.

It would be well also to take a course of stomachic bitters every spring and autumn, as tansy, colombo, camomile, burdock, prince's pine, &c.

When in a regular fit of the gout, it leaves the extremities, and falls on

some of the internal parts, proper applications to recall and fix it become absolutely necessary. When the gout affects the head, the pain in the joints ceases and the swelling disappears; while either severe head-ache, drowsiness, trembling, giddiness, convulsions or delirium come on. When it seizes the lungs, great oppression, with cough and difficulty of breathing ensue. If it attacks the stomach, extreme sickness, vomiting, anxiety, and pain in the epigastric region, and total loss of strength will succeed.

When the gout attacks the head or lungs, every method must be taken to fix it in the feet. They must be frequently bathed in warm water, and hot acrid poultices applied to the soles; ashorse-radish, mustard, poke-root, &c. Blisters ought likewise to be applied to the ankles or calves of the legs. Warm stomachic purges may likewise be used. The most effectual means, however, which I have seen used for drawing the gouty matter from the body into the feet, is the spirit vapor bath, applied to the feet and legs only, the rest of the body being covered so tightly as to prevent the vapor from having access to it.

If it attacks the stomach, with a sense of cold, the most warming cordials and carminatives are necessary, as strong wine boiled up with spices, saffron, cayenne, zanthoxylum, and even brandy or other spirits in large quantities. The patient should be kept in his bed, and the means recommended above used for driving the gout back to the feet. A perspiration should also be promoted by the fever powders, or warm teas and liquors. If there is an inclination to vomit, it should be promoted by warm camomile tea. Opiates, joined with anti-spasmodics and aromatics, may be of service.

When the gout attacks the kidneys, and imitates gravel pains, the patient ought to drink freely of a decoction of marsh-mallows, or such like, and have the parts bathed or fomented with warm water, or the anodyne wash, hops, &c. Laudanum may be taken, also, and a clyster given. The means recommended for drawing the gout into the feet, should be used.

When calculi, or hard chalky substances, have collected in any quantity in the joints, obstructing their motion, the gout is incurable.

RHEUMATISM.

This disease resembles, in some respects, the preceding affection. It generally attacks the joints with exquisite pain, and is sometimes attended with inflammation and swelling. It is most common in the spring and fall. It is usually distinguished into *acute* and *chronic*; or the rheumatism with and without fever.

CAUSES.—The causes of rheumatism are frequently the same as those of an inflammatory fever, viz., an obstructed perspiration, the immoderate use of liquors, and the like. Sudden changes of weather from heat to cold; working in water, wet feet, lying on damp ground, and travelling in the night, also produce it.

The rheumatism may likewise be occasioned by excessive evacuations. It is often the effect of chronic diseases, which vitiate the humors, as the scurvy, scrofula, venereal, and agues. Acrid serum, and a deficiency of vital heat, are also frequent causes.

SYMPTOMS.—The *acute* rheumatism commonly begins with weariness, shivering, a quick pulse, restlessness, thirst, and other symptoms of fever. Afterwards the patient complains of flying pains, which are increased by the least motion. These at length fix in the joints, which are often affected with swelling and inflammation.

THE CURE.—Use the spirit vapor bath and the anodyne wash externally,

as directed in the gout, and give internally the fever powders, particularly if the fever be violent, together with diaphoretic teas. The bowels should be kept open by clysters, or cool opening liquors. The diet should be light, as roasted apples, gruel, and chicken broths. After the feverish symptoms are over, if the pain continues, the patient should still keep his bed, and take such things as promote perspiration.

A strong tincture of cayenne pepper and zanthoxylum, or tooth-ache bark, is highly recommended as an external application in all kinds of rheumatic affections. The parts should be rubbed well with it till the circulation is restored. It may also be given internally in proper doses. Lobelia emetics will sometimes effect wonders.

If this disease proceeds from an inflammatory or vitiated state of the fluids, cleansing medicines should be given afterwards to remove the cause. If from debility, give tonics.

The *chronic* rheumatism is seldom attended with any considerable degree of fever, and is generally confined to some particular part, as the shoulders, back, loins, knees, &c. There is seldom any inflammation or swelling in this case. This rheumatism is often caused by the use of mercury, and is most severe at night, when the patient begins to grow warm in bed. Sometimes it is attended with fever.

This species of rheumatism is caused either by cold or by vitiated humors of a scrofulous nature, or by mercurial debility. These, therefore, will guide the treatment.

In the first place hot stimulants should be applied, inwardly and outwardly; as gum guaiacum, mustard, cayenne, cohush, spirits of turpentine, ginger, zanthoxylum, lobelia inflata, myrrh, grains of paradise, &c., joined with aromatics.

Whey, for a common drink, is most excellent in this disease. Blisters may sometimes be of service. A plaster of Burgundy pitch or of hemlock gum, or other warm plaster, worn for some time on the part affected, gives great relief in rheumatic pains.

If from foul humors or mercury, cleansing medicines must be used in addition. In my practice I make use of the anti-mercurial syrup for this purpose. It has never failed me in removing mercurial pains, when properly taken.

[The anti-mercurial syrup should not be omitted in any case of rheumatism. I have seen cures effected by this medicine which astonished all who saw the patients. I have myself been cured of a severe attack of rheumatism by this invaluable medicine. I have thought proper to give publicity to two letters which I received, with many others, from patients who had been cured of very severe attacks of this disease by the anti-mercurial syrup. I did not know the author of the first letter, Mr. Sagueze, until he called at my office some time after he was cured of the rheumatism. What he states may be relied upon as substantially true; he is a gentleman well known in New-York; he wrote to me as follows soon after his recovery from the rheumatism, under which disease he had been suffering the severest agonies for eighteen months:

“Coxackie, Sept. 26th, 1836. Dr. Isaac S. Smith, Sir: Allow me to make you acquainted with the benefit I have received from your most valuable medicine, called ‘The Anti-mercurial Syrup.’ For eighteen months I was a prey to that terrible disease, the Rheumatism; during which time I did not know what it was to be free of pain, and that the most agonising, except when under the influence of opium. I made use of every thing I could hear of, giving each medicine a fair trial. I used external and internal medicines, such as blisters, vapor baths, cupping and leeching, with electricity and bleeding. In short, I consulted the best physicians in the city, without receiving any material relief. I made up my mind that the few days allotted me, must be passed in misery. I moved to the country the 1st of May last, and by two

physicians there was given up, with no other hope than to take opium for relief. About the time I received this unpleasant information, Dr. Mott arrived from Europe. I resolved to visit him to receive his advice, even should it cost me my life. I arrived safe; the Doctor called on me at my lodgings, 94 Barclay street; he gave me the compound solution of arsenic; being informed what the medicine was, I gave up all hopes of getting well, as I had taken it in large quantities from other physicians. A drowning man will catch at a straw: I had seen your medicine advertised for the cure of rheumatism; and with but little expectation of receiving any benefit from it, I sent and purchased one bottle; I commenced taking it as directed; before I had taken the whole of one bottle, I experienced so much relief that I began to think of living instead of dying. I have taken four bottles, and have gained forty pounds of flesh, and am able to walk and attend to my business as well as ever. Before I took the Anti-mercurial Syrup, it was with the utmost difficulty I could be got out of bed. I cannot give credit to any other medicine than this. I send you this information, trusting that you will, for your own good, make it known to the public, that those who are suffering with this awful complaint may know where to find relief, as I am fully satisfied that whoever uses the Anti-mercurial Syrup, will receive benefit.

Reference as to the above, address a line to my wife, Catharine Sagueze, at Cox-sackie, Green county, New York; or call on Mr. and Mrs. Liberty, 94 Barclay st. With a heart full of gratitude, and a hope that this may be the means of giving relief to the afflicted, I remain your obedient servant,"

A. F. SAGUEZE.

Captain White, the author of the following letter, is well known in this and other parts of the world, as a ship master, and is a gentleman of strict integrity:

"New Haven, March 2nd, 1839. Dr. Isaac S. Smith, Dear Sir: I have heretofore neglected stating the effects of your Anti-mercurial Syrup, wishing to give the rheumatism ample time to return, if it were not thoroughly cured; but as I have not had the least symptom for ten months, I now think it due you to acknowledge its effects.

In the early part of 1836, while on the coast of Barbary, I was attacked with the rheumatism, which confined me to my bed for eight months. As there was no medical aid there, I went to Gibraltar, where I was under the care of eminent physicians nearly two months, receiving partial relief, being at this time only able to walk with crutches. In this condition, I returned to Barbary, where I continued about one year, suffering every thing but death. I was at length compelled to leave my business and return to New-York for assistance, where I consulted every physician who claimed to have any skill in the cure of my complaint, some of whom gave me relief for a short time, but, on the whole, I was very little benefited for nearly one year, the last six months of which I declined taking any medicine whatever, as it appeared to weaken the parts affected. In the month of May last, being about to leave the United States for Amsterdam, I was prevailed upon, by the earnest entreaties of my friends, to try your syrup; I did so without having the least faith in its efficacy; but, to my perfect astonishment, I found myself completely cured in ten days, in addition to which my general health was much improved, and is now better than it has been in ten years. I have since been much exposed to wet and cold, particularly on my late passage from Europe, in January and February, and no symptoms of the old complaint appearing, I have reason to think it entirely eradicated.

With much respect, your obed't serv't,

A. C. WHITE.

To ISAAC S. SMITH, M. D.

I should be unwilling to have my name appear in public print, for the sole reason that certificates are daily bought by quacks, from unprincipled motives; but, at the same time, I wish you to make use of it, and refer to me, who will ever be happy to testify in favor of the Anti-mercurial Syrup."

A. C. W.

I have thought proper to publish this letter, notwithstanding the objections of the Captain thereto. It was only by much persuasion that I prevailed upon him to take the syrup; I sent it on board his vessel the same day he left this port for Amsterdam. On his return to New-York, the following dialogue took place between the Captain and myself:

"Well, Captain White, how is the rheumatism, and how did the medicine operate?"

"The rheumatism is removed, thanks be to God and your medicine."]

HIP-GOUT, OR SCIATICA.

This disease is called sciatica because the pain is confined to the parts about the hip. It is caused by injuries, and vitiated humors of the system centering there; a thickening of the mucus in the joint; or by any causes which produce rheumatism.

SYMPTOMS.—Intense pain, as though the thigh were dislocated. It is most common in children and those who have not arrived to the age of puberty; sometimes very old persons are attacked with it. It rarely affects the middle aged. It produces wasting of the thigh, lameness, and, if not arrested, the ligaments become diseased, and the thigh bone slips out of the joint, sometimes making the affected leg three or four inches shorter than the other.

This is not dangerous or difficult of cure; although in the common practice, the patient is, at least, made a cripple for life. It requires considerable time, however, to remedy a long standing case.

CURE.—The medicines are much the same as those just recommended in rheumatism. If the parts are painful, which sometimes extends to the whole limb, bathe freely with the anodyne wash: it exceeds any thing else I ever used for giving relief in these cases, and many can testify to its value. Put a warm plaster on the hip, sufficiently large to extend to the superior part of the sacral bone and let it be worn continually. Burgundy pitch, hemlock gum, or some other warm and stimulating composition plaster should be used for this purpose.

At the same time, if the juices of the system are vitiated, and the constitution is sufficiently strong to bear it, give cleansing syrups, to remove the cause. But if there is great debility, it might be well first to prepare the system by giving strengthening medicines, as well as food.

If there is a disposition to suppurate and form an abscess on the hip-joint, we should, by all means, endeavor to draw the matter down upon the thigh, and let that be the seat of the collection. Abscesses upon the hip-joint are very destructive to its ligaments and cartilages, and generally ensure lameness for life. We should therefore endeavor to remove the matter, by applying warm drawing poultices just below the hip, upon a favorable spot, and by bathing the hip with cooling and anodyne washes. We should never cut in upon the joint, or make any opening, issue, or scarification upon it whatever, unless an abscess is actually formed upon it.

In curing this disease, especially in children who are much debilitated, we should never attempt to *force* a cure, as we then defeat our object. We should endeavour to cleanse the system by moderate means, and strengthen nature, so that in time she will gradually overcome the disease herself. The patient should live on solid and nourishing food, and use as much exercise as possible. Friction upon the diseased leg should not be spared.

[Much benefit is effected by the application of counter-irritants near the affected parts. The application of steam to the parts affected, by means of the vapor bath may be made. Let it be impregnated with herbs. The vapor of alcohol or brandy is an excellent remedy. The anti-mercurial syrup must not be omitted.]

If the thigh should have become dislocated we may attempt its reduction gradually, first using relaxing ointments, as necessary.

THE VENEREAL DISEASE.

Volumes have been written upon this disease, and almost as many different opinions promulgated of its origin, nature, and treatment, by their respective authors. Yet it remains, with most physicians, an ugly, intractable and stubborn disorder, baffling, in many cases, their utmost skill, and fastening itself upon thousands of mankind as the severest scourge that ever visited them. That such is the case, at the present time, every physician, in our large cities especially, can bear witness: and that such is the case I consider a sufficient apology for making known my peculiar method of practice in this afflicting disorder; and I undertake this with the greater confidence as it has been my fortune to be very successful in curing it, particularly in inveterate chronic cases of long standing.

I shall not attempt to trace out the origin of the venereal disease, or decide the claim of proprietorship between the old and new world. It is sufficient for us to know that it flourishes in full luxuriance among us, and that it is our duty to lessen the misery it occasions as far as we are able. Neither doth it become us to reprove any one for being thus afflicted; for, (as the great and good Sydenham observes,) it belongs to God to punish the offence, but it is our duty to assist the distressed and relieve the diseased to the best of our power, and not to make too strict an inquiry in the cause of the evil, and irritate them by our censures.

This disease is propagated in many ways, viz; by generation, whence it is communicated to the infant by one of the infected parents; or by touching some soft part by means whereof the virulence and inflammation are absorbed and communicated to the body, in the following manner; as, by sucking; thus the child may infect the nurse by the fine pores of the nipples of the breast; or the nurse the child, by its tender mouth. Children may gain the disease by lying in bed with infected persons. For though grown persons whose flesh grows firmer with age, can scarcely be infected by this means, without impure coition, yet the flesh of children being of a softer and finer texture, easily admits the infection.

The touching of a soft part, as the head or glans of the penis, in impure coition, however, is the usual way of contracting this disease; for the penis being turgid with hot blood and spirits designed for generation, readily imbibes the infection, from an ulcer, or the venereal poison secreted in the vagina, which being thus absorbed, is, upon the retrocession of the blood, wholly or partially carried into the circulation.

[Dr. John Hunter (who has written extensively on venereal) so well expresses my views of the peculiar action of the venereal virus, that I have quoted a small extract from his work on this disease. He says: "I shall therefore consider it as a poison which, by irritating the living parts in a manner peculiar to itself, produces an inflammation peculiar to that irritation, from which a matter is produced peculiar to the inflammation." He again says: "When the disease is of longer duration in some patients than in others, it is because they are much more susceptible of this kind of irritation, and there may be, perhaps, other concurrent circumstances."]

The principal appearances of the venereal disease are two, namely, a *clap*, or running from the urethra; and the *syphilis*, or dry pox, as it is called, which is when it appears externally, in sores or ulcers.

In regard to the clap, no certain rule can be laid down as to the time it will take before it makes its appearance, after the infection has been received. With some persons it will show itself in the course of three or four days, and even in one; while with others there will not be the least appearance of it for some weeks. It is usually perceptible, however, in the space of from six to four-

teen days, and in a male begins with an uneasiness about the parts of generation, such as an itching in the glans penis, and a soreness and tingling sensation along the whole course of the urethra; soon after which the person perceives an appearance of whitish matter at its orifice, and also some pungency on making water.

In the course of a few days the discharge of matter will increase considerably, will assume most probably a greenish or yellowish hue, and will become thinner and lose its adhesiveness; the parts will also be occupied with some degree of redness and inflammation; in consequence of which, the glans will put on the appearance of a ripe cherry, the stream of urine will be smaller than usual, owing to the canal being made narrower by the inflamed state of its internal membrane, and a considerable degree of pain and scalding heat will be experienced on every attempt to make water.

When the inflammation prevails in a very high degree, it prevents the extension of the urethra on the taking place of any erection, so that the penis is at that time curved downwards with great pain, which is much increased if attempted to be raised towards the abdomen, and the stimulus occasions it often to be erected, particularly when the patient is warm in bed, and so deprives him of sleep, producing in some cases an involuntary emission of semen. The above symptoms denote the presence of a *chordee*.

In consequence of the inflammation it sometimes happens that at the time of making water, owing to the rupture of some small blood vessels, a slight hæmorrhage ensues and a small quantity of blood is voided. In consequence of inflammation, the foreskin likewise becomes often so swelled at the end that it cannot be drawn back; or, that being drawn behind the glans, it cannot be returned. Now and then, from the same cause, little hard swellings arise on the lower surface of the penis along the course of the urethra; and these perhaps suppurate and form into fistulous sores.

The adjacent parts sympathising with those already affected, the bladder becomes irritable and incapable of retaining the urine for any length of time, which gives the patient a frequent inclination to make water, and he feels an uneasiness about the scrotum, perinæum, and fundament. Moreover, the glands of the groin grow indurated and enlarged, or perhaps one or both testicles becomes swelled and inflamed; in consequence of which he experiences excruciating pains, extending from the seat of the complaint up into the small of the back, he gets hot and restless, and a small symptomatic fever arises.

In consequence of the inflammation of the poison extending along the urethra, it sometimes happens that the mucous membrane of the bladder becomes thickened, indurated and ulcerated, and pours out a considerable quantity of muco-purulent matter, which added to the urine, gives it the appearance of whey.

Where the parts are not occupied by much inflammation, few or none of the above mentioned symptoms will arise, and only a discharge with a slight heat or scalding, in making water, will prevail.

If a clap is neither irritated by any irregularity of the patient, nor prolonged by the want of proper or timely assistance, then in the course of from one to three weeks, the discharge from having been thin and discolored at first, will become thick, white, of a ropy consistence, and deprived of its virulence, and from having gradually begun to diminish in quantity, will at last cease entirely, with every other inflammatory symptom; whereas, on the contrary if the patient has led a life of intemperance and sensuality, partakes freely of the bottle, and high seasoned food, all the symptoms are aggravated and the cure rendered more tedious and difficult.

Another risk arising from a long continuance of a running, especially if it has been attended with inflammatory symptoms, or has been of frequent recurrence, is the taking place of one or more strictures in the urethra; for,

the urethra being excoriated by the continual flux of acrimonious matter, nature, too hasty in generating new flesh, substitutes a loose spongy substance, which growing every day larger and harder, forms caruncles which obstruct the urinary passages, so as at length to hinder the evacuation of the urine. In this case, instead of the water being discharged in a free and uninterrupted stream, it splits into two, or is voided drop by drop. Such affections become, from neglect, of a most serious and dangerous nature, as they not unfrequently block up the urethra so as to induce a total suppression of urine; strictures in this stage require a long time to be entirely removed.

[In cases of very extensive stricture of the urethra, it frequently becomes necessary to introduce the catheter to empty the bladder of its contents; but this cannot always be done on account of the great contraction of the urethra by the stricture; in this case the stricture must be removed by dilatation; for which purpose the metallic or common bougie should be employed. A small one should be first introduced, and their size gradually increased. They should be allowed to remain in the passage as long as the patient can bear. If the stricture be very narrow, forming a ring in the urethra, it should be destroyed by the caustic bougies, which may be introduced as often as once a day.]

In some cases the stricture occupies a large portion of the urethra, rendering the passage of the bougie impossible, in which case an opening is to be made behind the stricture into the urethra, to relieve the painful symptoms. After this the stricture should be destroyed. To the successful treatment of stricture as laid down above it is necessary that the physician possess an intimate knowledge of the anatomy of the parts, and be accustomed to the operation for introducing the catheter.]

A stricture of the urethra, however, is not always the consequence of an inflammation from a clap. Occasionally it arises, particularly in old men, from a life of hard labor, lifting and straining, or from a scrofulous affection of the prostate gland, situated at the neck of the bladder. This is more common among hard laboring farmers.

When a clap has been of long standing, warty excrements are likewise apt to arise about the parts of generation, owing to the matter falling and lodging thereon; and not unfrequently prove both numerous and troublesome.

Moreover, it often happens that the venereal matter which should have been discharged by the running, is thrown upon the scrotum, either by violent exercise, or the premature use of astringents, and causes a violent pain and inflammation, with a considerable swelling, sometimes of one and sometimes of both the testicles; the running in the mean time proceeding slowly, but the heat of the urine remaining equally troublesome. This is frequently brought on by the impatience of the patient, to stop the troublesome running, by the ill-timed use of astringent injections.

Having noticed nearly every symptom which usually attends on the gonorrhœa, or clap, in the male sex, it will only be necessary to observe, that the same heat and soreness in making water, and the same discharge of discolored mucous matter, together with a slight pain in walking, and an uneasiness in sitting, take place in females as in the former; but as the parts in women, which are most apt to be affected by the venereal poison, are less complex in their nature, and fewer in number, than in men, so, of course, the former are not liable to many of the symptoms which the latter are; and from the urinary canal being much shorter and of a more simple form in them than in men, they are seldom if ever incommoded with strictures. With women, it indeed often happens, that all the symptoms of a clap are so very slight that they experience no other inconvenience than the discharge, except perhaps, immediately after menstruation, at which period they may perceive some degree of aggravation of the scalding and other symptoms.

Women of a relaxed habit, and such as have had frequent miscarriages, are apt to be afflicted with a disease named fluor-albus, or whites, which it is often difficult to distinguish from the running in the clap, as the matter discharged in both is in many cases of the same color and consistence. An accurate investigation, however, both of the symptoms which are present, and those which have preceded the discharge; as likewise the character and mode of life of the person, will generally produce a just conclusion.

In the cure of the gonorrhœa, or clap, it may be well as a preparatory, in most cases, to give a thorough purge, as of mandrake, (or something similar,) which I have known to cure the disease alone, when taken in the commencement. This lays a foundation upon which to build with some certainty. The bowels should be kept gently open, or soluble during the whole cure.

I then, immediately after the operation of the physic, direct a course of the anti-mercurial syrup. This operates, to speak generally, to drive the disease out of the system, by increasing all the secretions, and the discharge from the penis particularly, for a few days, when the matter assumes a white color and a less virulent appearance, the discharge decreases continually, the scalding stops, till, in the course of from two to four weeks, the running entirely ceases, and the disease is eradicated.

[If the discharge proves troublesome, the following mixture should be used: Two ounces of the balsam of copavia, one ounce of oil of cubebs, and if there is much inflammation a little laudanum and spirits of nitre may be added. A very excellent preparation will be found among the recipes.]

Such is my mode of treatment in a common case of clap, and generally I find that it is all that is necessary. But if severe symptoms should arise, and the scalding become exceedingly painful, I make use of the following diuretics, namely: a decoction of pumpkin seeds, in proportion of two ounces of the seeds, bruised, and boiled to a quart, to be drank in the course of two days. A drachm of foxglove boiled with the seeds, would be a useful addition in cases of great irritation, from its sedative power; or, as a substitute for the decoction, the expressed oil of pumpkin seeds may be used, in quantity of from eight to twelve drops, three times a day, or oftener if required. These preparations have never failed me in relieving the severest scalding and inflammation almost immediately. The oil of pumpkin or melon seeds is, indeed, one of the most efficient diuretics in any case, that I ever used.

In lieu of the above, for relieving the heat of urine, the following may also be used, and I have found them excellent: cleavers, infused in cold water, and drank freely, which is very cooling; or digitalis (foxglove) in powder, from three to six grains, three times a day; or pills of balsam of fir and digitalis; or linseed tea; or a solution of gum arabic; or any thing of a diuretic, cooling, and mucilaginous nature.

* When the above remedies have been timely applied, the troublesome consequences of chordee, swelled and inflamed foreskin, swelled testicle, strictures, &c., may be entirely avoided.

In case, however, of any of the above appearances, as, for instance, chordee, it is generally co-extensive with the inflammation, and goes off on the disappearance of it, with the use of the above diuretics. But if then the constriction does not relax, the part may be bathed with a solution of opium, or some penetrating oils. Emollient poultices, as bread and milk, &c., or a poultice of onions, bruised and warmed, will relax the spasm effectually. In a swelled and inflamed foreskin, the anodyne wash, applied with a wet bandage, will generally drive it away in a short time. [Leeches applied to the parts have a good effect in these cases.] The penis should not be suffered to hang, but be carried up to the abdomen with a bandage. If the wash should not be sufficient, a cooling poultice of the whites of eggs beat into a

curd with alum, and applied, will scarcely fail; a bean poultice is also good. For a swelled testicle with inflammation, the same means are proper, as above, except that the poultice of beans, or bean meal, is more peculiarly effectual. In all affections of the testicles, they should be carried in a suspensory bag. In strictures of the urethra, if inflammation is present, cooling and relaxing diuretics, as above mentioned, are necessary; and even when there is no inflammation, they may be of benefit, and should be tried. A poultice of onions applied near the stricture, is very relaxing and beneficial.

It is premised that in the removal of any of the above affections, or of any shape of the venereal disease, the anti-mercurial syrup is to be taken regularly till the disease is completely eradicated; and it should even be continued a week or two after all the appearances are gone, in order to make a sure cure, and remove all anxiety from the mind, of a return.

Above all things, particular care should be taken in respect of cleanliness. The matter discharged should not be suffered to touch the head of the penis, if possible, as in such case it is again absorbed, and the disease continually reproduced. An instance that occurred in my practice will exemplify this: A patient of mine, notwithstanding the use of the usual remedies, for a longer time than common, complained that the running was not at all diminished. I inquired into it, and found that he had kept a lock of cotton over the head of the penis to keep the matter off his clothes. This being constantly saturated with the poison, he was continually re-infected as effectually as he could possibly be by copulation; this fully explained the reason why the cure did not progress. In cases where the foreskin cannot be drawn back, particular care should be taken that matter is not suffered to collect behind the glans, as without this all other remedies are useless. It should be washed or syringed out several times a day.

SYPHILIS, OR THE SECOND FORM OF THE VENEREAL DISEASE.

This form of the disease appears externally, in eruptions, or ulcers, generally about the genitals. There are several species of this class. The chancre and bubo are a sort of intermediate stage between the clap and syphilis, and show that the poison is yet in a great measure confined to those parts. When the poison becomes diffused through the system, and the fluids corrupted, it breaks out in reddish, brownish, or copper-colored spots, over different parts of the body; or swellings in the glands of the neck, ulcers in the throat, and finally large fœtid ulcers, discharging much foul matter. Another species, and the most terrible, is the phagedenic, or eating and sloughing kind. This exhibits a corroding and malignant appearance, and spreads sometimes with rapidity, causing the most destructive havoc in the course of a few days. It more frequently attacks the glans penis, and foreskin, and often totally destroys them, under the common mode of treatment. There are several other consequences and appearances of this disease, many of which are the effects of mercury, which I shall particularize in their place.

The reader will understand, that neither in any shape of this or any other disease, has the author ever found mercury necessary; or any indication which may not equally well, or far better, be answered by other means. It is urged, however, that "mercury, *when employed with propriety*, is one of the most useful and powerful instruments in the hands of the profession." But what guarantee have we that it *will be* used with "propriety?" Or what is the standard of "propriety" when we see it used indiscriminately in almost every disease, in this enlightened age of physic? When we look around us and behold the multitudes of broken and ruined constitutions, entailing lives of debility and misery upon our fellow beings, and which we can trace to the use of this death-dealing mineral, (though even in these cases, perhaps, it was used with as much propriety as it could be,) it becomes us,

as possessing humanity, seriously to find out a substitute. Such substitutes, the Almighty in his protecting care, has caused to *grow* in almost every land, and they are ready to the hand of every man who is disposed to seek them out and use them. Should we not, then, at once dispense altogether with so unnatural a remedy, the operation of which is to overcome disease by the creation of a greater? Let us no longer incur guilt, or disclose our ignorance, by countenancing the use of a mineral so incompatible with the health and well being of our fellow men.

But I have digressed from my subject; suffice it to say, that instead of mercury as a general remedy in all the above forms of the venereal disease, I substitute my anti-mercurial syrup, which not only cures with greater certainty, but leaves the patient free from the distressing effects so common from the use of the former.

Chancre—is an ulcer, with a thickened base, little inflammation, and no disposition to heal. It generally appears on the foreskin, or behind the gland, and in women about the nymphæ, and clitoris, and sometimes up the vagina. It makes its appearance either with a slight inflammation which afterwards ulcerates, or there arises a small pimple or pustule, filled with a whitish fluid, which soon breaks and becomes a spreading ulcer. This comes on, in from six days to several weeks. They are exceedingly painful.

In order to cure chancres, cleanliness is very requisite. It should be washed as often as any matter collects, or four or five times a day, with warm water, to prevent the absorption and generation of the poison. After washing, I usually sprinkle on a powder of marsh-rosemary roots, or of blood root, pulverized. This, with the use of the syrup, disposes it to heal kindly. It may be useful also, to wash the sore with a solution of white vitriol, or if very painful, to foment it with a solution of opium, or a decoction of poppies. I have also used as a wash for this and all foul ulcers, a decoction of witch-hazel bark, with great success; and when there is any foul or ugly flesh, I apply the green salve, which takes it all out, and prepares it for healing. The chancre, when mismanaged, often terminates in an eating ulcer.

A bubo—happens when the venereal matter is collected or secreted in the glands of the groin, which in a measure intercept its passage into the system, whereby the groin becomes indurated, swelled, and inflamed, producing a bubo. It first comes on with pain in the groin, and hardness and swelling, which continuing to increase, at length becomes as large as an egg, throbs, reddens, and occasions difficulty in walking. In some cases the suppuration is quickly completed; in others very slow; and in others again it goes off slowly without any formation of pus. In a few instances the glands become scirrhus.

Other swellings of the groin, as rupture, aneurism, abscess, &c., may be mistaken for bubo, unless the cause is inquired into.

A bubo is never attended with danger when it proceeds on regularly to suppuration, which is the most desirable termination; but in many cases it acquires an indolence after coming to a certain length, or it may terminate in an eating ulcer.

When the penis is inflamed, or has ugly sores upon it, and there is an appearance of a bubo, we should endeavor to bring it to suppuration quickly, with drawing poultices continually applied warm; as a discharge in the groin draws off the matter from the other parts, and soon runs out the disease. But, as a bubo is very inconvenient, if it is not very necessary that it should be brought to a suppuration, we may attempt to disperse it in its commencement; and this I can generally do with the application of my anodyne wash, or alum curd. If with these, or similar applications, it does not disperse, I then poultice, as above, to bring it to a head, and as soon as it is fit to open, it should be lanced. After it is open it should be kept as clean as possible,

and from the air, and suffered to run. If fungous flesh arises, apply the green salve, and it will heal up as soon as proper.

But if a bubo becomes indurated, and will neither disperse nor suppurate with the above means, it may be leeches or blistered, and thus will it disperse in time under a course of the syrup.

If a bubo should degenerate into a corroding and eating ulcer, a poultice of fish-worms, as will be hereafter described, may be applied, till the malignity and fever is extracted.

The *eating* and *sloughing* ulcer, is the most malignant appearance of the venereal disease. It attacks the head of the penis, or foreskin, and frequently a part or the whole of the penis is destroyed by its ravages. It has a corroded, livid, and angry aspect, will not bear any irritation, often destroys blood vessels, causing hæmorrhages, which, however, are beneficial, unless too profuse. This ulcer is very painful and tender. The eating ulcer is sometimes attended with mortification and sloughing, which destroys fast.

A poultice of flax-seed or slippery elm should be applied, after the removal of which, should any fungous flesh or foulness appear, the green salve will effectually keep it under, and produce a discharge of healthy pus. If this salve should be too powerful, it may be reduced. Witch-hazle bark, or marsh-rosemary in decoction, should be used for a wash, in the mean time.

When this eating process attacks the glands of the throat, and the palate, it soon causes a frightful excavation in the back part of the mouth, destroying the power of speech, &c. In these cases, in addition to the syrup, we can only use gargles, as the decoction of witch-hazle, or marsh-rosemary; or the powder of the latter may be blown into the ulcer with a quill or tube. If these ulcers are suffered to proceed, the small bones of the palate and nose become carious, and the nose falls in level with the face.

Often, too, an internal ulcer is formed in the head, and foul matter discharged continually from the nostrils, from this disease. In such cases the powder of bayberry bark may be used as snuff, to excite sneezing.

When this disease appears in scaly and itching eruptions over different parts of the body, afterwards terminating in deep ulcerations, discharging fetid matter, all that is necessary is a thorough course of the syrup, cleanliness, and such other attention to dressing the sores as may be necessary.

[The anti-mercurial syrup is a most invaluable medicine in this disease.]

It frequently happens, from the long continuance of the disease, and the pernicious use of mercury, that the bones of the head become exceedingly painful. Hard swellings push out suddenly in different parts of the head, and as quickly recede. It is peculiarly distressing in the night, as it destroys sleep. Bathing the head with my anodyne wash, affords great relief from the pain, and keeps the patient comfortable while the cure is progressing. Similar hard swellings, or nodes, on other parts of the body, and particularly on the shin bone, may be dispersed in the same manner with considerable friction.

Pains in the bones in damp weather, which are an almost certain consequence of the use of mercury, are very soon relieved by the use of the anti-mercurial syrup.

Chronic and stinking ulcers on the legs, discharging much matter, are generally caused by an ill-cured venereal infection, and require the same cleansing treatment, together with the green salve, if necessary.

When there is great debility, poor appetite, &c., I give with the syrup the iron and myrrh pills, two of them three times a day.

In short, to conclude, when we discover any affection, local or general, which can be traced to this disease, or to the use of mercury combined with

it, we may be sure that the poison yet lurks in the system, and that it must be thoroughly cleansed out, and the cause removed, before the cure can be completely effected.

IMPOTENCE.

Imbecility, is an inaptitude for coition. *Impotency*, is a total incapacity for that action.

CAUSES.—A deficiency of vital heat, or some impediment to its proper efflux from the spinal marrow; weakness of the solids, profuse venery, ill-cured clap, gleans of long continuance, gravelly disorders, general debility, self-pollution, frequent bleedings, and the use of mercury.

SYMPTOMS.—Flaccidity and hanging down of the testicles, coldness of the glans penis; few, weak, or no erections; pain or weakness of the loins, wandering stitches in the sides and groins, head-ache, involuntary emissions, without erections, hypochondria.

If it is an original disease, the cure is more difficult; in old men, impracticable. If the patient is young and has no other complaints of any consequence, or if it proceeds only from indiscreet excesses, it is easily cured. If accompanied with a gleet or clap, first cure them.

THE CURE.—Great regard should be paid to diet and exercise. The patient should keep his mind constantly employed, to prevent as much as possible the incursion of venereal desires and thoughts. He should rise early in the morning, take a great deal of exercise, stopping short only of fatigue. The less fluids that are drank the better. Let the diet be of shell fish of all sorts, particularly oysters, lobsters, and crabs; of flat fish, eels, and such like; or of any wild fowl, the most eligible of which are pigeons, partridges, and woodcock; add to which, eggs, strong meat soups, any animal (but no vegetable) food, particularly pork, calves head, with the skin on, calves' and neats' feet. Milk is the best breakfast and supper, and brandy and water the most proper drink at dinner. All strengthening agglutinants, chalybeates, and aromatics, are useful. The testicles and adjacent parts should be bathed night and morning with equal parts of alcohol and vinegar, or tinctured with hot stimulants, till they contract to their place; nor is it a matter unworthy of attention to wipe the glans dry after making urine.

Barrenness is owing generally to the same causes, and requires the same method of treatment. To give fruitfulness to the semen, by determining a sufficient quantity of nervous influence to it, nothing equals the oil of cloves; this, therefore, ought not to be omitted in any medicines that are given, calculated for that purpose.

The clove jelly, with perhaps the addition of the tincture of cantharides, will consequently be a powerful remedy. Or, take half an ounce of oil of cloves, dissolve in the yolk of an egg, and then add an ounce and a half of tincture of cantharides; of these drops let two table spoonsful be taken night and morning.

Together with these, let general strengthening medicines, and chalybeates be used, as the tonic mixture, the female strengthening syrup, and such like.

In the meantime the patient should abstain from sexual indulgence.

SCROFULA, OR KING'S EVIL.

This disease chiefly affects the glands, especially those of the neck. Children and young persons, of a sedentary life, are very subject to it. The inhabitants of cold, damp, and marshy countries are most subject to it. It was called *king's evil*, from an imaginary cure performed by the royal touch.

CAUSES.—An acrid blood, hereditary disposition, venereal taint, or a scrofulous nurse. Children born of sickly parents are apt to be affected with the scrofula. It may likewise proceed from such diseases as weaken the habit, or vitiate the humors, as the small pox, measles, &c. In short, whatever tends to vitiate the humors or relax the solids, paves the way to scrofula; as the want of proper exercise, too much heat or cold, confined air, unwholesome food, bad water, the long use of poor, weak, watery aliments, the neglect of cleanliness, &c.

SYMPTOMS.—At first small knots appear under the chin, or behind the ears, which gradually increase in number and size, till they form one large hard tumor. This often continues for a long time without breaking, and when it does break, it only discharges a thin, acrid, watery humor. Other parts of the body are likewise liable to its attacks, as the arm-pits, groins, feet, hands, eyes, breast, &c. Nor are the internal parts exempt from it. It often affects the lungs, liver, spleen, prostate gland, &c., and frequently the glands of the incsentry are greatly enlarged by it.

Those obstinate ulcers which break out upon the feet and hands, with swelling, and little or no redness, are of the scrofulous kind. They seldom discharge good matter, and are more difficult of cure. The white swellings of the joints seem likewise to be of this kind. I have seen the calf of a man's leg swelled with a scrofulous humor till it measured two feet in circumference. There is not a more general symptom of scrofula than a swelling of the upper lip and nose. It sometimes begins in a toe or finger, which continues long swelled, with no great degree of pain, till the bone becomes carious.

THE CURE.—As this disease proceeds in a great measure from relaxation, the diet ought to be generous and nourishing; all slops should be avoided. As much exercise should be taken in clear open air as the patient can bear. Cold bathing, particularly, in salt water, is of great benefit, as it braces the solids. Even salt water, drank, is of great use.

When the disease proceeds principally from vitiation or foulness of the humors, cleansing syrups, or such like, should be used in the commencement, and continued as long as may be necessary; at the same time, also, giving medicines to strengthen the blood, as the iron and myrrh pills, &c. After continuing this course till the system is sufficiently purified, or till the matter of the scrofula becomes very thin, and the bloating reduced, then give chalybeates, tonics, bitters, and stimulants, as the tonic mixture, which is very effectual, mineral waters, &c.

When a fistulous pipe, with a callous secreting surface, is formed in the scrofulous tumor or ulcer, that must be removed, in addition to the other means above recommended, before it can be healed up soundly. This pipe often runs to a considerable depth. I generally remove this by inserting the green salve into it; if deep, it may be pushed in through a tube, or with a probe, and it should reach the bottom. This kills the pipe, and causes it to separate from the surrounding flesh, in the space of from one to three days, when it may be pulled out with a small forceps. The salve should be renewed daily. When the pipe is extracted, the inflammation in the surrounding flesh causes it to unite, when the sore may be healed up. This operation is attended with considerable pain; but the object cannot be effected

without occasioning some distress, and this method inflicts the least of any that I am acquainted with.

To disperse a scrofulous tumor, when it has not progressed so far as to render it impossible, softening and dispersing ointments may be used, as the bitter sweet ointment, and such like; or cold applications, as salt, sal ammoniac, &c.

If they cannot be dispersed, we may attempt to break them by the application of drawing poultices; as of soap, sugar, and flour; sorrel leaves, wilted and laid on; yellow dock, &c.

In scrofulous sores, of ugly, gleetings, and ill-conditioned appearance, much benefit has been obtained by the application of a poultice of pond-lily roots, or of poke-root; also, bayberry bark, pulverized, or the balsam of life; or the green salve, and such things as will stimulate the surface of the sore into action.

The rattle-snake violet, called also scrofula plant, is said to possess great efficacy in this disease. Many other plants have been extolled as useful, as the pond-lily, given internally, as well as applied externally; also the yellow dock, and the burdock.

The cure of scrofula is tedious, at best; but it is not on that account the less practicable, if a proper treatment is made use of. Perseverance is a very necessary ingredient in the means to be made use of; and if changes take place in the appearance of the disorder, we must endeavor to adapt the medicine accordingly; continually bearing in mind that nothing must be omitted which can give tone to the stomach, and invigorate the system. The anti-mercurial syrup must not be omitted.

SCURVY.

The scurvy is a diseased state of all the fluids. It prevails chiefly in cold northern countries, especially in low damp situations, near large marshes, or great quantities of stagnant water. It often proves fatal to sailors on long voyages, particularly in ships that are not properly ventilated, or where cleanliness is neglected.

The *land scurvy* is not so severe in degree as the *sea scurvy*, the latter being attended with putrid symptoms.

CAUSES.—An acidity, acrimony, or (at sea) a putrefactive quality in the blood, often induced by a moist air, obstructed perspiration, putrid water, poorness of blood; the continual use of salted, or smoke-dried provisions, or any kind of food that is hard of digestion and affords little nourishment.

SYMPTOMS.—An acute pain in the head; universal weariness, heaviness, and difficulty of breathing, especially after motion; rottenness of the gums, which are apt to bleed on the slightest touch; a stinking breath; frequent bleeding at the nose; crackling of the joints; difficulty of walking; sometimes a swelling and sometimes a falling away of the legs, on which there are livid, yellow, or violet colored spots. The face is generally of a pale or leaden color. As the disease advances, other symptoms come on; as rottenness of the teeth, discharges of blood from different parts of the body; foul obstinate ulcers, pains in various parts, especially about the breast, dry scaly eruptions all over the body, &c. At last, a wasting hectic fever comes on, and the miserable patient is often carried off by a dysentery, diarrhœa, a dropsy, the palsy, fainting fits, or a mortification of some of the bowels.

THE CURE.—We know of no way of curing this disease but by pursuing a plan directly opposite to that which brings it on. It proceeds from a vitiated state of the humors, occasioned by errors in diet, air, or exercise. The

cure, therefore, is to be effected by a proper regulation of these important articles.

If the patient has been obliged to breathe a cold, damp, or confined air, he should be removed to a dry, open, and moderately warm one. If the disease proceeds from a sedentary life, or depressing passions, the patient must take exercise, and keep cheerful company.

When the scurvy has been brought on by a long use of salted provisions, the proper medicine is a diet consisting chiefly of fresh vegetables, as oranges, apples, horse-radish, scurvy-grass, brook-lime, mints, smellage, water-cresses, &c. The use of these, with milk, pot-herbs, new bread, and of buttermilk or whey for a constant drink, or new beer, or fresh cider, will seldom fail to remove a scurvy of this kind, if taken before it is too late; but to have this effect, they must be persisted in for some time. When fresh vegetables cannot be obtained, acids of all kinds, particularly the elixir of vitriol, and vinegar, may be used freely.

To the above regulations of diet, may be added the following medicines: Indian turnip made into a conserve with sorrel, and horse-radish, or mustard. Infusions of bitter plants; decoctions of dandelion, dock, or sarsaparilla, and such like, are proper. All kinds of salad are good in the scurvy, and ought to be used freely. Sulphur is beneficial in some cases, but should be given cautiously, or it may weaken too much.

In the land scurvy a milk diet sometimes produces extraordinary effects. This preparation of nature is a mixture of animal and vegetable properties, which of all others is the most fit for restoring a decayed constitution, and removing that particular acrimony of the humors, which seems to constitute the very essence of scurvy.

In all states of the scurvy the anti-mercurial syrup is proper.

LEPROSY, OR SALT RHEUM.

The leprosy is a cutaneous disorder, which appears in whitish dry scabs, and often spreads over the whole body.

CAUSES.—Obstructed perspiration, weakness of the solids, poverty of the blood, ill-cured itch, the remains of which will often lurk, appearing and disappearing, for many years, and at length will break forth in this dry scurf, gradually enlarging.

SYMPTOMS.—Sometimes it is confined to the palms of the hands only, with fissures which run parallel to each other; sometimes to a little below the elbows; one time to the face only; another in white, hard scabs on the hands and arms, and intolerable itching.

THE CURE.—For the leprosy give the most nourishing diet, and use precisely the same method as recommended under scurvy.

[Whatever remedies change the action of the skin, may be employed in this disease.]

SCIRRHUS AND CANCER.

A scirrhus is a hard indurated tumor, usually seated in some of the glands, as in the mamma, or breasts, the arm-pits, &c. If the tumor become large, unequal, of a livid blackish, or leaden hue, and is attended with violent lancinating pains, it receives the name of stone or lump cancer. It sometimes appears in the form of a spider or other animal, having body and legs, fibres,

or roots, when it is usually called a spider cancer. When the skin is broken, and a thin acrid matter, of an abominably fœtid smell, is discharged from the sore, it is called an open or ulcerated cancer, or from its appearance, a rose cancer.

Many physicians, and some, too, who have had great experience, as well success in the cure of cancer, have expressed a belief that, at least, in some instances, it is possessed of an independent existence, and may almost be said to have animal life.

Persons after the age of forty-five, particularly women, and those who lead an indolent, sedentary life, or have lived in celibacy, or have had no children, are most subject to this disease. It is commonly confined to the glands, as the mamma, the arm-pit, the testicles, &c. But it is now and then to be met with in the womb, as likewise in the face, under the jaw, and other parts that are thinly covered with flesh, and which at the same time are a good deal exposed to external irritation, such as the lower lip, the angles of the eyes, the organs of vision, the wings of the nose, the tongue, and the penis. A cancer is an ulcer of the very worst kind, with an uneven surface and ragged and painful edges, which spreads in a very rapid manner, discharges a thin acrimonious matter, that excoriates the neighboring integuments, and has a very fœtid smell, and which is usually preceded by a hard scirrhus swelling of the part, if glandular.

CAUSES.—A gross, acrimonious, malignant humor of the system, which is intercepted in the glands, and collecting in them, produces inflammation and tumors: thus a nucleus or collecting point is formed, to which the cancerous humors centre. Cancers may proceed from suppressed evacuations; hence it so frequently attacks women of a gross habit, particularly old maids and widows, about the time when the menstrual flux ceases. It may be occasioned by the long continued use of food that is too hard of digestion, or of an acrid nature; by barrenness, celibacy, indolence, cold, bruises, friction, pressure, or the like. Women often suffer from the last of these by means of their stays, which squeeze and compress their breasts so as to occasion great mischief.

If there were any doubts that a cancer proceeds from a constitutional predisposition, or that it is fed and kept alive by an humor that pervades the whole system, surely the frequent and almost certain return of the cancer, after it has once been entirely taken out, must settle the question.

SYMPTOMS.—This disorder seems often to be very trifling in the beginning; a hard tumor about the size of a hazle-nut, or, perhaps, smaller, is generally the first symptom. This will often continue for a long time without appearing to increase, or giving the patient much uneasiness; but if the constitution be injured, or the tumor irritated by pressure or improper treatment of any kind, it begins to extend itself towards the neighboring parts, by pushing out roots, or limbs. It then receives the name of cancer, from a fancied resemblance between these limbs and the claws of a crab.

The color of the skin begins to change, which is first red, afterwards purple, then bluish, livid, and at last black. The patient complains of heat, with a burning, gnawing, shooting pain. The tumor is very hard, rough, and unequal, with a protuberance or rising in the middle; its size increases daily, and the neighboring veins become thick, knotty, and of a blackish color.

The skin at length gives way, and a thin sharp ichor begins to flow, which corrodes the neighboring parts till it forms a large unsightly ulcer. More lump cancers arise, and communicate with the neighboring glands. The pain and stench become intolerable; the appetite fails; the strength is exhausted by a continued hectic fever; at last, a violent hæmorrhage, or dis-

charge of blood from some part of the body, with faintings or convulsion fits, generally put an end to the miserable patient's life.

REGIMEN.—The diet should be solid, plain, and nourishing; all strong liquors and high seasoned or salted provisions are to be avoided. The patient may take as much exercise as he can easily bear; and should use every method to divert thought and amuse his fancy. All kinds of external injury are carefully to be guarded against, particularly of the affected part, which ought to be defended from all pressure, and even from the external air, by covering it with fur or soft flannel.

MEDICINE.—This is one of those diseases which the faculty of the present day have generally condemned as incurable; at least by any other means than the *knife*; and it is unnecessary for me here to show the fallacy of that method, where there is a real cancer. The experience of all who have resorted to it, to say nothing of its unreasonableness, should be sufficient to condemn this operation in toto. As I have already said of another disease, cancer is incurable because we know not *how* to cure it; not because it is, from its nature, irremediable. However, it is an ugly and obstinate malady, and requires considerable time to effect its thorough eradication.

My method of treatment is simply this; and which I conceive strikes at the root of the disorder: destroy the cancerous humor in the system by a thorough course of alterative and cleansing medicines. It is scarcely necessary for me to add, that in effecting this, I make use of the anti-mercurial syrup, which operates safely and effectually, even when the patient is much reduced. Joined with this, I also use the iron and myrrh pills. These, or preparations which will have the same effect, that is, to cut off the source of the cancer, are all the internal general remedies that are necessary, except perhaps some little occasional medicines.

Externally, if the tumor is small and not yet open, apply softening and detergent ointment; as the bitter-sweet; or electricity may be applied to it. If the tumor is of sufficient size to warrant the practitioner in drawing it out with plasters, he may attempt it. Several plasters for this purpose will be found among the recipes. Their operation is somewhat painful, but that cannot be avoided, for we must take the life of the cancer or we cannot cure it. The use of plasters, however, does not render the internal remedies less necessary.

If the cancer has ulcerated, and become open, apply cat skins, newly stripped off and warm; or the flesh of fresh killed chickens. These will extract the fever and acrimonious poison astonishingly, and become in the course of two or three hours perfectly rotten and corrupted with it. They should then be changed for a fresh application. This method should be continued till the poison and life of the cancer are extracted, when the whole substance of the tumor will become a dead mass, and may be taken out with ease and without pain. If it is not convenient to obtain the skins or flesh to apply continually, they may be alternated with poultices of charcoal and yeast, which also extracts putridity. The flesh of any animal is good, but I consider cat skins or chickens preferable.

Few things contribute more to the healing of foul sordid ulcers of any kind, than keeping them thoroughly clean. This ought never to be neglected. The best application for this purpose seems to be the carrot poultice. The root of the common carrot may be grated and moistened with as much water as will bring it to the consistence of a poultice. This must be applied to the sore, and renewed twice a day. It generally cleans the sore, eases the pain, and takes away the disagreeable smell, which are objects of no small importance in such a dreadful disorder. The charcoal and

yeast poultice has the same effect. In every species of open cancer, the air should be excluded as much as possible.

No benefit can be expected from any medicine in this disease, unless it be persisted in for a long time. It is of too obstinate a nature to be soon removed, and a radical cure must be brought about by inducing an almost total change of habit, which must always be a work of time. From four months to a year, or even more may be requisite to perform a substantial cure; and the patient must make up his mind, as he values his life, to persevere steadily in a course of cleansing medicines till a cure is effected, let it take what time it will. Many discouraging symptoms and unpleasant sensations may arise in the progress of the cure, and they may even appear quite alarming at times, but they generally soon pass off, and should not be allowed to impair our confidence in a final cure.

Among the medicines found useful in eradicating cancer, are: yellow dock root, in decoction, for a daily drink; and also applied externally as a poultice. Also poke or coke root, in decoction and poultice. A salve composed of the expressed juice of sorrel, poke leaves or berries, and yellow dock, dried away in the sun, has been highly recommended. The extract of cicuta is also used with benefit as a discutient salve. Prince's pine, or pipsissaway in decoction is also very cleansing.

[I must acknowledge that, as far as my experience has taught me, my faith in the cure of cancer is extremely limited. Different kinds of tumors are not unfrequently, by the inexperienced, pronounced to be cancerous. We have, however, the authority of eminent men in our profession for believing in the cure of this most terrible disease. I think the above remedies, prescribed by my father, who had much experience in the treatment of cancer, are deserving of a trial in all cases of this affection.]

INFLAMMATION AND ABSCESS.

From whatever cause inflammation proceeds, it must terminate either in resolution, suppuration, or gangrene. Though it is impossible to foretell with certainty in which of these ways any particular inflammation will terminate, yet a probable conjecture may be formed with regard to the event, from a knowledge of the patient's age and constitution. Inflammation happening, in a slight degree, upon colds, and without any previous indisposition, will most probably be dispersed; those which follow close upon a fever, or happen to persons of a gross habit of body, will generally suppurate; and those which attack very old people, or persons of a dropsical habit, will have a strong tendency to gangrene.

If the inflammation be slight, and the constitution sound, the dispersion ought always to be attempted. This will be best promoted by applying cooling, discutient, and anodyne washes and fomentations. A free application of the anodyne wash, will generally be sufficient to disperse any common inflammation, when it is not caused by a superabundance of impurities in the system: or, in place of the anodyne wash, salt and vinegar, may be used; or emollient fomentations may be applied to the part.

But if, notwithstanding these applications, the symptomatic fever increases, and the tumor becomes larger, with violent pain and pulsation, it will be proper to promote the suppuration. The best applications for this purpose, are soft warm poultices; as bread and milk, a mixture of soft soap, lard, and rye flour, or similar drawing substances; taking care to put them on as warm as the patient can bear, and change them two or three times a day. If the suppuration proceeds but slowly, bruised raw onions may be spread on the poultice. Roasted sorrel is a powerful application to break a

boil. When the abscess is ripe or fit for opening, which may be easily known from the thinness of the skin in the most prominent part of it, fluctuation of matter, which may be felt under the finger, and, generally speaking, an abatement of the pain, it should be opened with a lancet. The last way in which an inflammation terminates, is in a gangrene or mortification, the approach of which may be known by the following symptoms: The inflammation loses its redness, and becomes dusky or livid; the tension of the skin subsides and the skin falls flabby; little bladders, filled with acrid water, of different colors spread all over it; the tumor subsides, and from a dusky complexion becomes black; a low quick pulse, with cold clammy sweats, are the immediate forerunners of death.

When these symptoms first appear, the part ought to be dressed with a poultice of charcoal and yeast, or other antiseptics, as arse-smart, wild indigo, &c. Afterwards the green salve should be applied to produce a separation of the mortified parts from the sound flesh; when the wound will become a common ulcer, and must be treated accordingly.

Fellons, or Whitloes, belong to this class of complaints. They are very painful. They are generally caused by purulent matter lodged very deep, probably within the membrane surrounding the bone of the finger. When this is first coming on, which may be known by a pricking sensation deep in the finger, it may be dispersed by immersing it in lye, as hot as can be borne, for the space of half an hour. This should be repeated two or three times a day, as long as necessary. If, notwithstanding this, it should continue to increase, the part should be opened to the bone with a lancet, and the incision made wide, as fungous flesh is very apt to shoot out and become troublesome. A poultice of blue flag and wild indigo root will almost invariably disperse a felon in its commencement; as also will warm fresh flesh.

Boils and similar collections are also included under this head. They are all abscesses in consequence of a previous inflammation, and show impurities of the blood; and not only that, but furthermore, that there is sufficient power in the action of the system to throw the impurities out. The supuration of boils ought, therefore, to be promoted, by drawing applications, or such as will cause them to break, which is all that is necessary.

BURNS.

For burns or scalds of all kinds, or from whatever cause, the most effectual, convenient, and cheap (although homely) remedy, is urine. Let cloths wet with this, be laid on, and kept continually soaked with it, till the fire is extracted and the pain abates, which will usually be effected in the course of thirty minutes. This is so complete a remedy that not even a blister will appear from the burn, or any other disfigurement, unless the skin was badly broken in the first place. Afterwards the parts should be oiled well with sweet oil.

Among other things which are beneficial in burns, are, lime-water and sweet oil, or linseed oil; raw potatoes, scraped fine and laid on; a poultice of slippery-elm bark, or of bread and milk; an ointment of green elder; or an ointment of green clover.

If the burn should show a disposition to mortify, it should be treated as other cases of mortification.

BRUISES.

Bruises are generally productive of worse consequences than wounds. The danger from them does not appear immediately, by which means it often happens that they are neglected. It is needless to give any definition of a disease so universally known; we shall, therefore, proceed to point out the method of treating it.

In slight bruises it will be sufficient to bathe the part with warm salt and vinegar, to which a little spirits may occasionally be added, and to keep cloths wet with this mixture constantly applied to it. For this purpose, also, the anodyne wash may be used with great advantage, and will prevent pain and inflammation in all common cases. In some parts of the country, the people have a custom of applying to a recent bruise or burn, a cataplasm of fresh cow dung. I have often seen this applied to severe contusions, occasioned by blows, falls, bruises, and to severe burns, and I never knew it to fail to have a good effect.

When the bruise is very violent, the patient ought to be bled as soon as a return of pulsation is felt at the wrist; it may also be well in severe cases to apply leeches to the part.

[It will never be safe to bleed the patient in cases of contusion until reaction is perfectly established; which is indicated by the pulse rising to its ordinary standard.]

The bruised part should be bathed, as directed above; and a poultice made by boiling crumbs of bread, elder flowers, and camomile flowers, in equal quantities of vinegar and water, applied to it. This practice is particularly proper when a wound is joined to the bruise. It may be renewed two or three times a day.

As the structure of the vessels is totally destroyed by a violent bruise, there often ensues a great loss of substance, which produces an ulcerous sore. If the bone be affected, the sore will not heal before the diseased part of the bone separates and comes through the wound. This is often a very slow operation.

If such ulcerated bruises have continued so long as to become constitutional, cleansing internal remedies must be used, together with proper applications to the sore. If its sides have become dead and inactive, stimulating fomentations and ointments are necessary to give it life, and a healthy appearance; when this takes place, simple emollient dressings only should be used, taking care that the air be kept from the sore.

As a wash for foul sores to promote healing, a decoction of witch-hazle bark, with a small quantity of the balsam of life mixed with it, is very serviceable.

 ULCERS.

Ulcers are either constitutional or local. Local ulcers are such as are caused by an external injury, and are not fed and kept alive by impurities in the system. Nature generally heals these in her own time; and all else that is required is to keep the parts clean, soft, and protected from the air, with simple ointments. These may, however, continue so long from mismanagement or neglect, as to become constitutional, requiring general remedies.

Constitutional ulcers may be occasioned by whatever produces bad blood and vitiated humors; as scrofulous diseases, the venereal disease, ill-cured fevers, &c. Also a scorbutic acrimony, impoverished blood, sedentary life, poor and unwholesome food, moist air, damp ground, working before a fire, as baking, &c.

These ulcers serve as drains, which carry off the impurities generated in the system by disease; and we must not attempt to heal them till the system is properly cleansed and the cause removed.

If the sore discharges pus, or thick matter, purifying syrups must be used. If the matter discharged is of a thin acrimonious quality, in addition to the cleansing remedies, we should make use of strengthening tonics, and such medicines as give weight, warmth, and activity to the blood.

The sore should be kept clean and healthy. If there is fungous or proud flesh, apply the green salve, or something similar; if it is foul and smell disagreeable, antiseptic poultices, as charcoal and yeast, or arse-smart. Stimulating washes and powders are serviceable, if the ulcer has become callous and insensible; as bayberry, in powder or decoction; zanthoxylum, in decoction; witch-hazle, &c. But while the sore continues soft, lively, and appears well, all that is necessary is to keep it so with soft ointments, and with the proper administration of internal remedies, nature will heal it up as soon as can be done soundly.

PART II.

Under this Department are included 1st, the DISEASES OF WOMEN, 2nd, DISEASES OF PREGNANCY, 3d, MIDWIFERY PROPER, and 4thly, the DISEASES OF INFANTS.

DISEASES OF WOMEN.

WOMEN, in all civilized nations, have the management of domestic affairs, and it is very proper they should, as nature has made them less fit for the more active and laborious employments. This indulgence, however, is generally carried too far; and females, instead of being benefitted by it, are greatly injured, as they not unfrequently suffer, in consequence thereof, from the want of due exercise and pure free air. To be satisfied of this, one need only compare the fresh and ruddy looks of the milk-maid, with the pale complexion of those females whose whole time is spent within doors. Though nature has made an evident distinction between the male and the female with regard to bodily strength and vigor, yet she certainly never meant either that one should be always without, or that the other should be always within doors.

This confinement of females, besides injuring their figures and complexion, relaxes their solids, weakens their minds, and disorders all the functions of the body. Whence proceed obstructions, indigestion, flatulence, abortions, and the whole train of nervous disorders. These not only unfit women for becoming mothers and nurses, but render them whimsical and childish. A sound mind depends so much upon a healthy body, that when the latter is wanting, the former is rarely to be found.

It may always be observed, that women who were chiefly employed without doors, in the different branches of husbandry, gardening, and the like, were almost as hardy as their husbands, and that their children were likewise strong and healthy. But as the bad effects of confinement and inactivity upon both sexes have been already shown, we shall proceed to point out those circumstances in the structure and design of females, which subject them to peculiar diseases, the chief of which are, their *monthly evacuations*, *pregnancy*, and *child-bearing*. These, indeed, cannot properly be called diseases; but from the delicacy of the sex, and their being often improperly managed in such situations, they become the source of innumerable calamities.

THE MENSTRUAL DISCHARGE.

Females generally begin to menstruate about the age of fourteen, and leave it off about forty-five, which renders these two periods the most critical

of their lives. About the first appearance of this discharge, the constitution undergoes a very considerable change, generally indeed for the better, though sometimes for the worse. The greatest care is now necessary, as the future health and happiness of the female depend in a great measure upon her conduct at this period. If a girl about this time of life be confined to the house, kept constantly sitting, and neither allowed to romp about, nor employed in any active business, which gives exercise to the whole body, she becomes weak, relaxed, and puny; her blood not being duly prepared, she looks pale and wan; her health, spirits, and vigor decline, and she sinks into an invalid for life. Such is the state of numbers of those unhappy females, who, either from too much indulgence, or their own narrow circumstances, are at this critical period denied the benefit of exercise and free air.

A lazy, indolent disposition proves likewise very hurtful to girls at this period. One seldom meets with complaints from obstructions among the more active and industrious part of the sex, whereas the indolent and lazy are seldom free from them. We would therefore recommend it to all who wish to escape these calamities, to avoid indolence and inactivity as their greatest enemies, and to be as much abroad in the open air as possible.

Another thing which proves very hurtful to girls about this period of life, is unwholesome food. Fond of all manner of trash, they often indulge in it till their whole humors are quite vitiated. Hence ensue indigestions, want of appetite, and a numerous train of evils. If the fluids be not duly prepared, it is utterly impossible that the secretions should go properly on. Accordingly we find that such girls as lead an indolent life, and eat great quantities of trash, are not only subject to an obstruction of the menses, but likewise to glandular obstructions, as the scrofula, or king's evil, &c.

A dull disposition is also very hurtful to girls at this period. It is a rare thing to see a sprightly girl who does not enjoy good health, while the grave, moping, melancholy creature proves the very prey of vapors and hysterics. Youth is the season for mirth and cheerfulness, let it therefore be indulged; it is an absolute duty. To lay in a stock of health in time of youth, is as necessary a piece of prudence as to make provision against the decays of old age. While, therefore, wise nature prompts the happy youth to join in sprightly amusements, let not the severe dictates of hoary age forbid the useful impulse, nor damp with serious gloom the season destined to mirth and innocent festivity.

Another thing very hurtful to females about this period of life, is straight clothes. They are fond of a fine shape, and foolishly imagine that this can be acquired by lacing themselves tight. Hence, by squeezing the chest, stomach, and bowels, they confine the lungs, choke the stomach and bowels, and occasion incurable maladies. I know many females who will through life feel the dreadful effects of this wretched custom, of squeezing every girl into as small a size in the middle as possible. Human invention could not possibly have devised a practice more destructive of health.

After a female has arrived at that period of life when the menses usually begin to flow, and they do not appear, but on the contrary, her health and spirits begin to decline, we would advise, instead of shutting the poor girl up in the house, and dosing her with steel, assafœtida, and other nauseous drugs, to place her in a situation where she can enjoy the benefit of fresh air and agreeable company. There let her eat wholesome food, take sufficient exercise, bathe the lower part of her abdomen daily with spirits, and amuse herself in the most agreeable manner; and we have little reason to fear, but nature, thus assisted, will do her proper work. Indeed, she seldom fails, unless the fault is on our own side.

This discharge in the beginning is seldom so instantaneous as to surprise females unawares. It is generally preceded by symptoms which foretel its approach; as a sense of heat, weight, and dull pain in the loins; distension

and hardness of the breasts; head-ache, loss of appetite, lassitude, paleness of the countenance, and sometimes a slight degree of fever. When these symptoms appear about the age at which the menstrual flux usually begins, every thing should be carefully avoided which may obstruct that necessary and salutary evacuation, and all means used to promote it; as sitting over the steam of warm water, drinking pennyroyal or other warm teas, &c.

After the menses have once begun to flow, the greatest care should be taken to avoid every thing that may tend to obstruct them. Females ought to be exceedingly cautious of what they eat and drink at the time they are out of order. Every thing that is cold, or is apt to sour on the stomach, ought to be avoided; as fruit, buttermilk, and such like. Fish, and all kinds of food that are hard of digestion, are also to be avoided. As it is impossible to mention every thing that may disagree with individuals at this time, we would recommend it to every female to be very attentive to what disagrees with herself, and to carefully avoid it.

Cold is extremely hurtful at this particular period. More of the sex date their diseases from colds caught while they are out of order, than from all other causes. This ought surely to put them upon their guard and to make them very circumspect in their conduct at such times. A degree of cold that will not in the least hurt them at another time, will at this period be sufficient entirely to ruin their health and constitution. Violent passions or affections of the mind, as anger, grief, fear, &c., often occasion obstructions, and should therefore be avoided.

AMENORRHŒA, OR SUPPRESSION OF THE MENSES.

From whatever cause this flux is obstructed, except in a state of pregnancy, proper means should be used to restore it. For this purpose we would recommend sufficient exercise in a dry, open air, wholesome diet, and if the body be weak and languid, generous liquors: also cheerful company, and all manner of amusements. If these fail, recourse must be had to medicine.

When obstructions proceed from a weak and relaxed state of the solids, such medicines as tend to promote digestion, to brace the solids, and assist the body in preparing good blood, ought to be employed. For this purpose I have made use of the tonic tincture with invariable success. The iron and myrrh pills, also, will generally have the desired effect. The other principal medicines are, warming and strengthening bitters and tonics, as motherwort, unicorn root, centaury, tansy, beth root, southernwood, &c., with wine. If it is accompanied with spasms, or nervous symptoms, anti-spasmodics may be united with the above medicines; as motherwort, ginger, valerian, cloves, nutmegs, the mother's cordial, &c.

If a cold is the cause of obstructions, bathe the parts with spirits, and place the patient over the steams or fomentations of warm water, or of spirits. Also give diluting teas, as pennyroyal, camomile, brook-lime, &c., or the fever powders.

Previous, however, to the use of these medicines, it may be advisable to give an emetic, for the purpose of cleansing the stomach, and freeing it from acidities and inactive fluids.

When obstructions proceed from a viscid state of the blood, or in women of a gross or full habit, evacuations, and such medicines as thin the humors, are necessary; as cleansing syrups, diluting drinks, &c.

An obstruction of the menses is often the effect of other maladies. When this is the case, instead of giving medicines to force the discharge, which might be dangerous, we ought by all means to endeavor to restore the pa-

tient's health and strength. When that is effected, the other will return of course.

It sometimes happens in young girls, that the hymen is imperforate, or that the vagina is grown up, thereby rendering it impossible for the menstrual discharge to be effected. This may be suspected when the menses do not appear at the usual time, and a bloating of the lower region of the abdomen takes place, accompanied with other symptoms of obstruction. When this is the case, puncturing the imperforate part is all that is necessary.

A safe maxim to be observed in all cases of obstruction of the menses, is, *never to force a discharge*. This flux is nature's business ; it proceeds from her abundance, and not from her deficiency. When the system is healthy and free, and every part well balanced, this salutary overflow is the consequence. But when there is a deficiency of blood, and laxity, coldness, and debility of the system, it does not appear, because nature cannot spare it. How preposterous, then, is the practice of giving steel, savine, ergot, and other forcing medicines, when the system is in this enfeebled state. Rather let us strengthen and prepare the functions of the body to do their own work.

MENORRHAGIA, OR IMMEDIATE FLOW OF THE MENSES.

The menstrual discharge may be too great as well as too small. When this happens, the patient becomes weak, the color pale, the appetite and digestion are bad, to which swellings of the feet, dropsies, and consumptions often ensue. It is also accompanied with laxity of the muscular fibre, lank hair, flabbiness of the flesh, fainting, &c.

If after abortion, parturition, or if the patient is above forty-five years of age, it must be very profuse to prove dangerous. If the age is about thirty, and it is succeeded by a spontaneous and total suppression, it often proves fatal. If of long continuance, and always immoderate at the periodical returns, and the patient under forty, it cannot be restrained too soon.

THE CURE.—As the cause is almost invariably weakness of the solids, deficiency of heat, and want of elasticity in the fibres of the mouths of the vessels which open into the womb, the practitioner, when this is the case, cannot be at a loss for the remedies. The tone of the system must be restored by tonics and astringents, and such medicines and diet as brace the solids. Among these are, beth root, colombo root, orange peel, unicorn, elixir vitriol, and other acids ; astringent drinks, as of oak bark, sweet-hugle herb, gum kino, crane's bill, rose water, &c. Astringent injections must also be used if the case requires. A cloth dipped in vinegar may be laid across the loins.

When the case is urgent, nearly all practitioners who have written on this subject propose blood-letting by way of *revulsion* ; such a practice cannot be too much execrated. A vomit is a more speedy, more effectual, and far safer remedy, as it tends to restore an equilibrium in the circulation.

The treatment of this disease must be varied according to the cause. When it is occasioned by any error in the patient's regimen, an opposite course to that which induced the disorder must be pursued, and such medicines as have a tendency to restrain the flow, and counteract the morbid affections of the system whence it proceeds. If the humors are viscid, give such things as thin the blood, and determine to the surface.

When a female experiences severe pains, as in travail, upon the occasion of her periodical flux, the *mother's cordial* will give great relief.

THE FLUOR ALBUS, OR WHITES.

What is usually called the whites, is a very common disease, and proves extremely hurtful to delicate women. It is caused by a laxity of the fibres of the mucous glands in the vagina; suppression of the menses, sprains in the loins, hard labor, excessive purging, bleeding, venery, blows, falls, weakness of the solids, &c.

The symptoms are, a constant oozing from the external orifice, of a white matter, sometimes thin, yellow, or brown; fœtid sensation of heat in making urine, fainting fits, loathing of food, pain in the back and loins, increased by exercise, wasting away of the flesh, dejected countenance. Sometimes the matter discharged is sharp and corrosive, sometimes foul and stinking.

This disease is easy of cure. Women are generally troubled with it a great while before they apply for assistance; to this natural bashfulness they owe more bad consequences than they ever suspected. It is often productive of many dreadful disorders, which might with great facility have been prevented; as consumptions, falling down of the womb, internal ulcers, barrenness, dropsy, &c.

THE CURE.—The cold bath, also the most nourishing diet is necessary, as milk, meat broths, shell fish, and such like. A breakfast of two drachms of isinglass, boiled in milk, is of great use. The clove jelly may be taken continually, and will be found very serviceable.

Astringent and healing washes and injections are likewise necessary, to brace up the relaxed mouths of the glands. Oak bark decoction is perhaps as good as any for this purpose; it may be tinctured with the balsam of life, as also may be all other washes used for this purpose. Other astringents are likewise proper, as the tormentil, crane's bill, sweet bugle, marsh rosemary, alum, &c. The witch-hazle decoction is not inferior to any of the above.

As a general internal remedy, I usually make use of the "female syrup," which will be found among the recipes. This is peculiarly applicable to the cure of this disease, and when properly used, in conjunction with the necessary washes, rarely fails of removing it entirely.

Preparations of iron, with bitters, are also applicable to the cure of this complaint.

CESSATION OF THE MENSES.

COMMONLY CALLED THE "TURN OF LIFE."

That period of life at which the menses cease to flow, is likewise very critical to the sex. The stoppage of any customary evacuation, however small, is sufficient to disorder the whole frame, and often to destroy life itself. Hence it comes to pass, that so many women either fall into chronic disorders, or die about this time. Such of them, however, as survive it without contracting any chronic disease, often become more healthy and hardy than they were before, and enjoy strength and vigor to a very great age.

If the menses cease all of a sudden, which is seldom the case in women of a full habit, they ought to abate somewhat of their usual quantity of food. They ought likewise to take sufficient exercise, and keep the body open. This may be done by taking once or twice a week, a little rhubarb in wine or brandy.

It frequently happens that a scirrhus or cancerous affection of the womb takes place on the stoppage of the menstrual flux; and in women of a gross

habit, it is very common at this period of life to have ulcerous sores break out about their ankles, or in other parts of their body.

To cure which, as well as prevent these and all other chronic affections which this important change in the constitution is apt to engender, and carry women safely through it, it is my general practice to give cleansing and alterative decoctions and syrups. These, judiciously administered, will often prove of incalculable advantage, without being attended with any risk, and frequently prevent a train of ills which otherwise would render the remainder of the life of many a female a scene of misery.

PROLAPSUS UTERI, OR BEARING DOWN OF THE WOMB.

This complaint consists in a change in the situation of the womb, in which it falls much lower than it ought to do, in some cases absolutely protruding without the vagina. This complaint is of frequent occurrence, more frequent than is generally suspected, even by the sufferers themselves. False delicacy in females, or modesty in the physician, often prevents the necessary means of ascertaining the presence of this disorder. Such conduct is very unprofitable to all concerned, and is productive of wrong applications of medicine.

CAUSES.—In married women the most frequent causes are: the forcible, (though needless) plucking away of the after-birth, neglect of properly replacing the parts after delivery, and other gross mismanagement in child-bed; frequent miscarriages; too early exercise after delivery; immoderate venery; the whites, and general and local debility. In the unmarried, it is apt to come on from violent exertions, such as dancing, jumping, riding, lifting heavy weights, &c., while out of order.

SYMPTOMS.—The disease comes on generally with an uneasy sensation in the loins while standing or walking, accompanied now and then with a kind of pressure or bearing down. By disregarding these feelings, the woman at length is incapable of making urine without first pushing up the swelling; and if the complaint continues to increase, the womb swells, and is actually forced out of the parts, and takes on the form of a bulky substance hanging between the thighs. The patient also experiences severe pains shooting to the small of her back and sides, and down the thighs, with frequently a numbness in the thigh and leg of the affected side. If suffered to continue, it is productive of many distressing symptoms which undermine the constitution, disturb the functions of the stomach and bowels, and impair the nervous system.

THE CURE.—The womb should be carefully raised to its place, and means used to keep it there, particularly a bandage girt tightly around the lower part of the abdomen, and passing between the legs. Examination should be made by the physician, as often as every other day, to see that it is in its place, and if not, he should replace it with his finger. All straining or laborious exercise should be avoided.

After the womb has become diseased or affected with scirrhus or scrofula, internal cleansing remedies must be used, and the part should be syringed often with a decoction of camomile, or of bitter-sweet, plantain, and spikenard, and such like. These are more particularly necessary, if the womb has become scirrhus, or hard and inflamed. When it is soft, and the parts greatly relaxed, warm astringents and stimulants should be used for injections, as directed in the whites.

When this disorder is accompanied or caused by general and local debility,

the treatment should be the same, mostly, as is directed in the whites. The female syrup will be found very strengthening, and must not be omitted.

Pessaries of silver may be sometimes used with advantage in severe cases of falling of the womb, to keep it up to its place; but it is much better to strengthen the vagina and parts with bracing astringent injections, till they gradually acquire sufficient tone to retain their places, than to resort to these. Wooden and wax pessaries ought never to be inserted.

GREEN SICKNESS.

The green sickness, as it is commonly called, is a distemper that attacks females generally before puberty, and sometimes (if there be no eruption of the menses) long afterwards. It is also termed white fever, and the virgin disease.

CAUSES.—A deficiency of vital heat, acid in the stomach, viscosity and vitiation of the blood, pining, inactivity, dyspepsia, too profuse secretion of the pancreatic juice, deficiency of bile, &c., obstructions, and stagnation of the fluids.

SYMPTOMS.—A sallow, pallid, or livid countenance; laxity of the muscular fibres, inflated eyelids, swelling of the ankles, and sometimes of the abdomen; indolence; aversion to exercise; the breathing difficult and panting; head-ache, a palpitation of the heart, green stools, sour breath and depraved appetite.

This chronic disorder is sometimes of long continuance, without producing any remarkable ill consequences; sometimes scirrhusities proceed from it: it is rarely difficult of cure. Menstruation generally carries it off. Feeding on chalk, tobacco pipes, and such like, is not the cause, but the effect of the disease.

THE CURE.—The regimen should be the same as in weakness of the solids. An emetic is very proper to commence with. Afterwards give aromatics, tonics, bitters, and alkalies. The tonic tincture is of great service, as it infuses vigor and animation into the system. Ginger, pepper, cloves, nutmegs, and such like, are proper. Bitters, as myrrh, gentian, unicorn root, centaury, camomile, galangal, birthwort, orange-peel, &c., are also appropriate. Anti-spasmodics and emmenagogues may be necessary, in some cases.

DISEASES OF PREGNANCY.

Though pregnancy is not a disease, yet it is a state often attended with a variety of complaints which merit attention, and which sometimes require the assistance of medicine. Some women, indeed, are more healthy during their pregnancy than at any other time; but this is by no means always the case; many of them being frequently indisposed during the whole or greater part of the time of their gestation. Few fatal diseases, however, happen during this period; and hardly any except abortion that can be called dangerous.

During a state of pregnancy, three different stages evidently exist, each of which has a distinct set of symptoms; nor need we be surprised when we come to consider the alteration the constitution suffers as a consequence of impregnation, at the many complaints and irregularities which then arise. The first state of pregnancy is usually attended with a suppression of the menstrual flux, accompanied with nausea and frequent vomiting, particularly

in the morning; heartburn, indigestion, peculiar longing, head-ache, giddiness, tooth-ache, and sometimes a slight cough; the breasts become enlarged, shooting pains extend through them, and the circle round the nipple alters to a dark brown color. A feverish tendency, with debility, emaciation, irritability and peevishness of temper, and a total alteration of countenance, every feature of which becomes sharpened, also frequently occur. During the whole or greater part of the second stage of gestation, as well as the first, the vomiting will continue with some women; this, however, does not usually happen.

Partial suppression of urine, with frequent inclination to void it; itching about the external parts of generation, costiveness, inclination, without ability to go to stool, and piles are what women are mostly incommoded by during the second stage.

QUICKENING.—Most women quicken about the sixteenth week after conception, at which time the mother becomes sensible of the slightest efforts of her child; and besides the complaints above enumerated, she will then be liable to sudden fainting, and slight hysteric affections. During the last three months, or third stage of gestation, general uneasiness, restlessness, particularly by night, costiveness, puffy swellings of the feet, ankles, and private parts, cramps in the legs and thighs, difficulty of retaining the urine for any length of time, swellings of the veins of the abdomen and lower extremities, and the piles, are the affections which usually prove most troublesome. In delicate and weak women, of an irritable habit, costive fits sometimes arise, which are ever to be regarded in a dangerous point of view.

Nausea and Vomiting.—These symptoms most frequently arise on getting out of bed in the morning; under such circumstances, therefore, it is advisable for the patient never to rise until she has taken a cup of coffee or tea. Should the vomiting at any time become so severe as to threaten abortion from the violence of the straining, it may then be advisable to take a little alkaline drink. Or the patient may take frequently ten or fifteen drops of elixir vitriol in a draught of strong mint tea. Opiates and anti-spasmodics may be necessary.

It sometimes happens that vomiting continues incessantly for many days, accompanied with great prostration of strength, and constant thirst, with, at the same time, an utter impossibility of retaining any thing on the stomach. Under these circumstances, a gentle emetic, as of blood root, may be given with safety and advantage. Afterwards, chicken broth, taken in small quantities, would be a very proper diet. If the patient should be very thirsty, she may drink weak peppermint and cinnamon-water. Applications may also be made to the pit of the stomach as directed in the treatment of vomiting.

Heartburn.—When a pregnant woman is incommoded with heartburn, half a drachm of magnesia may be taken night and morning; or the sal aratus and rhubarb mixture, tinctured with peppermint or cinnamon-water; this I have found to be the most efficacious of all remedies for the removal of this distressing complaint.

Head-ache and Plethora.—When either drowsiness, a sense of fullness in the vessels of the head, or head-ache, proves troublesome to pregnant women, the head may be bathed with the anodyne wash; or, if that should not procure relief, taking away a few ounces of blood from the arm, in a robust woman, will most likely prove serviceable.

Costiveness, Piles, &c.—Costiveness, partial suppression of urine, and the piles, which attend pregnancy, are occasioned by the great pressure of the womb upon the rectum and bladder. The first and last of these symptoms

are to be obviated by the daily use of some gentle laxative, as manna, castor oil, and such like ; or, what is better, clysters.

Hysterics.—Should sudden fainting, or any other hysteric affection arise, little more will be necessary than to expose the patient to a free open air, to place her in a horizontal position, and to give her a glass of cold water with a few drops of hartshorn, or a little wine in it.

Diarrhœa.—During pregnancy, should be treated the same as at any other time.

Suppression of Urine.—To relieve the suppression of urine that frequently takes place in the advanced state of pregnancy, besides making use of fomentations, clysters, and gentle purgatives, as castor oil, &c., the patient may at the same time drink plentifully of diluent and diuretic drinks, as tincture of cleavers, oil of pumpkin seeds, &c. In very severe cases, a catheter may be necessary to draw off the urine.

Troublesome Itchings.—When these sensations arise about the parts of generation during the pregnant state, it will be proper to keep the body perfectly free with some cooling laxative, and to wash the parts three or four times a day with milk and water or a solution of sugar of lead.

Puffy Swellings of the feet, ankles, and private parts, which are apt to arise towards the end of pregnancy, are occasioned by the pressure of the womb on the returning vessels, which prevents the blood from being carried back to the heart. These swellings generally come on towards night, and disappear in the morning. Gentle purgatives may be used, together with fomentations, diuretics, diaphoretics, &c. In general, however, it will only be necessary to keep the patient at rest, with her legs as much in a horizontal position as possible. [Bandages may be applied with good effect.]

Cramps of the Legs and Thighs, are to be relieved by rubbing the parts with cold vinegar ; camphor, dissolved in oil, or other liniments, the person wearing stockings in bed. In my, practice, however, I usually make use of the mother's cordial, which gives relief in most cases. At an advanced period of pregnancy, the cause of these cramps is only to be removed by parturition.

Restlessness and Want of Sleep prove troublesome complaints towards the latter end of pregnancy, obliging the patient to rise frequently through the course of the night in order to expose herself to the influence of cool air. In cases of this nature, nothing affords relief so effectually and completely as the mother's cordial. The virtues of this preparation, in such cases, may be estimated from the fact, that no woman who has once used it, would be deprived of it when again in a like condition, for any consideration whatever.

Jaundice.—Pregnant women, in some instances are afflicted with a pain in the side, excessive sickness at the stomach, and retchings, the skin assuming a deep yellow tint ; under which circumstance alone, the complaint proves distressing. The most efficient means of relieving the patient from this degree of the complaint, are fomentations to the parts pained, with the fever powders or opium, with laxatives.

Incontinency of Urine is to be relieved only by delivery. A horizontal posture will in some measure relieve this troublesome affection.

Over Distention of the skin.—The skin of the abdomen, in the latter months of pregnancy, will sometimes become cracked and sore. In this case nothing is more effectual than the frequent use of warm oil by friction, to which a little camphor may be added.

False Pains, resembling those attendant on actual labor, are apt to come on at a late period of pregnancy, often occasioning unnecessary alarm. A free use of the mother's cordial will soon put an end to them. It allays all spurious pains, and keeps the patient perfectly easy, till the actual labor comes on in good earnest.

Convulsions may take place either during pregnancy or labor. These are of different kinds. One species is in consequence of great exhaustion from tedious labor, excessive fatigue, and profuse hæmorrhage, which makes its attack without much previous warning, and generally alternates with faintings, or great depression of strength and debility; the muscles about the face and chest are principally affected, while the face is pale, the eyes sunk, and the extremities cold. The fits succeed each other rapidly, and if not relieved will soon terminate in a fatal swoon. In all cases of this nature, the first object should be directed towards restraining the flooding, if present, or preventing any kind of exertion, thus husbanding the remaining strength, or recruiting it with cordials. Camphor, castor, musk, and opium will be of considerable use. In delivery it is usually necessary.

Other species of convulsions, which are those of a hysterical nature, are more common during gestation, than parturition. In this case anti-spasmodics are necessary.

To sum up the whole, in relation to these convulsions, I have reason to believe that a proper use of the mother's cordial, both previously and present, will prevent and relieve them altogether. During an extensive practice of many years in these disorders, I have not had a solitary case of convulsions, anywise troublesome, where this invaluable cordial had been used. The cranberry, or crany bark, alone, is very effectual in relieving cramps and spasms of this description.

PUERPERAL CONVULSIONS.

[These may take place either during labor or a few hours after it commences, after labor has terminated, or some months before its occurrence. The attack is preceded by symptoms of determination of blood to the brain; the mind wanders, and the vessels of the neck are full and turgid; the face is swollen, sickness and pain in the stomach. With such symptoms there is great danger. They may be attacked without any perceptible symptoms; if standing, they will fall down instantly.

During the attack, the eye lids quiver, the eyes are turned up, the mouth drawn to one or the other side, and the whole body violently convulsed. There is foaming at the mouth; the tongue protrudes out of the mouth, and it is with difficulty they can be prevented from biting it. The countenance is frightful to look at. The breathing is accompanied with a hissing noise. These symptoms usually continue for a few minutes. The convulsion generally continues from three to five minutes. If consciousness does not return when the convulsion goes off, there will be difficult respiration. The patient will appear to breathe only through the mouth, and there will be a great quantity of saliva in the mouth and throat occasioning a constant bubbling as the air, on breathing, passes through it.

If the patient is perfectly sane after the subsidence of the convulsion, none of the last mentioned symptoms will appear, and the patient will inquire what the matter is.

A person may have from one to fifty, or even a hundred of these convulsions.

There are two conditions of the system which render the female liable to puerperal convulsions, viz: plethoric and irritable; the former abounding

with blood, while the latter, being often confined in some solitary place, is left to brood over her unhappy condition, which occasions great irritability of her system.

I was called to take care of a lady in her confinement, with whom I was unacquainted. After a few pains had come and gone, and just as another was commencing, she went into a convulsion, which continued about a minute. When the pain recommenced, she again went into another convulsion. When she came out of the second, I took away about twenty ounces of blood, (she was of the plethoric habit.) The labor after this progressed a little, when the convulsions returned again. I again bled her to about the same amount, after which she was delivered. But she was soon after this, again attacked with convulsions, when I bled her the third time. She finally recovered and did well.

I saw another case to which I was called in consultation. I suggested the above treatment, but was unfortunately overruled. Under these circumstances I, of course, would have nothing to do with the case. The patient was not bled, and consequently soon expired.

There is another peculiarity I shall mention, occurring in these cases. While the patient is laboring under puerperal convulsions, contractions of the uterus will sometimes occur in rapid succession; but on examination, the os tense, or mouth of the womb, will be found rigid and undilated; and if the patient dies, which is sometimes the case, during the very last struggle of expiring nature, the child will frequently be partially expelled. A case of this kind occurred to which I was called in consultation with another physician. I made an examination but a few minutes before the patient died, and found the mouth of the womb still undilated and firm, and no signs of expulsion had taken place. I then left the patient in the care of the attending physician. On examination after death, the head of the child was found entirely expelled.

I have seen many women afflicted with this terrific disease, all of whom died of it except those who were bled freely. "Bleeding," says Dr. Gouch, "is our sheet-anchor, in whatever class of patients the disease may occur." This indicates what should be done before an attack takes place; in the plethoric, the pressure that is on the system must be taken off from every person in whom it exists. All means that are employed to reduce the force of the circulation are good.

There are many persons who will disagree with me in my views of treatment; but my opinion is based upon a long experience. There are other means that are good and ought to be used in addition to the above treatment. This is a disease which will not admit delay; the means used must act promptly, or you lose time that you cannot regain.

The kind of convulsions which my father treats of are different in character from those that I have here described.]

ABORTION.

Every pregnant woman is more or less in danger of abortion. This should be guarded against with the greatest care, as it not only weakens the constitution, but renders the woman liable to the same misfortune afterwards. Abortion may happen at any period of pregnancy, but is most common in the second or third month, sometimes it happens in the fourth or fifth month. If after the seventh month, the child may often be kept alive by proper care.

This and every other disorder to which a woman is liable during the state of her pregnancy, is chiefly owing to a deficiency of heat and blood, which

may be easily gathered from the consideration of the expense she is at for the nutrition of the fœtus, and the formation of its appurtenances; if two ounces of blood were drawn every day from a person ever so healthy, for forty weeks together, let it be left to common sense to determine whether such an one can stand in need of supernumerary blood-letting during that time.

It is on this account that their faces appear so thin, their noses pinched in, and various disorders attack them which originate from a deficiency of blood. If a woman with child is bled, says Hippocrates, a miscarriage is endangered: the larger the fœtus, the more certain and expeditious will be the abortion. Experience confirms the truth of this observation of the divine old man. I knew many ladies who used blood-letting during their pregnancy, and miscarried; but, on the omission of it, went out their full time, and were delivered of healthy children. That all do not miscarry who are bled is true, and indeed nothing is more to be wondered at than the inexhaustible resources of nature, by which she can recover herself from the consequence of such ill-timed evacuations. To use blood-letting because her periodical visits disappear, is absurd and childish, for it cannot be a manly argument that we ought to lavish away that fluid which nature demonstrates her want of by her care to preserve it.

The common causes of abortion are: the death of the child; weakness or relaxation of the mother; great evacuations, as of blood-letting; violent exercise; lifting, reaching, jumping or stepping from an eminence; vomiting; coughing and convulsion fits; blows and falls; fevers; disagreeable smells, indolence, high living, or the contrary, and violent passions of the mind.

The signs of approaching abortions, are, pain in the loins, or about the lower portions of the abdomen; a dull heavy pain in the inside of the thighs; a slight degree of coldness, or shivering; sickness; palpitation of the heart: the breasts become flat and soft; the abdomen falls; and there is a discharge of blood or watery humours from the womb.

If nature is not counteracted, or disturbed by unnecessary interposition, there is seldom any danger to the mother. If the fœtus is dead, (which may be known by fainting fits, cold sweats, flushings, rigor, or the fœtus falling from side to side,) nothing but mild emmenagogues, as the mothers cordial, brooklime, cohush, &c., should be given once or twice a day. It may continue in the womb three or four weeks without any ill consequences, and it scarcely ever exceeds that time before nature effects its expulsion.

To prevent abortion, we would advise women of a weak or relaxed habit to use solid food, avoiding great quantities of tea, and other weak and watery liquors; to rise early and go soon to bed; to take frequent exercise in the open air, but to avoid fatigue; and never go abroad in damp foggy weather, if they can help it. Women of a full habit ought to use a spare diet, avoiding strong liquors, and every thing that may tend to heat the body, or increase the quantity of blood. The diet should be of an opening nature. Every woman with child ought to be kept cheerful and easy in her mind. Her appetites, even though depraved, ought to be indulged to their extent, and I never knew an ill consequence to arise from it.

When any signs of abortion appear, the woman ought to be laid in a bed, or on a mattress, with her hips raised, and her head low. She should be kept quiet, and comforted; avoiding all heating things. Her food should consist of broths, rice and milk, jellies, gruels, and the like, all of which ought to be taken cold, especially if there is flooding present.

The mother's cordial, may be depended upon in all cases of threatened abortion, as a preventative, where prevention is possible. It relaxes all spasms and pains, and puts the patient at perfect ease. I have often given this cordial when an abortion was endangered, from a fall or injury, and the patient

was writhing under the most excruciating pain, and it rarely fails to give complete relief in twenty or thirty minutes.

If the woman be seized with a violent looseness, let her take small doses of the sal æratus and rhubarb mixture. If she be affected with vomiting, let her take the same, or, for common drink, crust coffee. Opiates, or other anodyne, as the extract of hops may be of service sometimes; but when the mother's cordial is used, these can be dispensed with.

Sanguine, robust women, who are liable to miscarry at a certain time of pregnancy, ought always to take a moderate purge, as of rhubarb, a few days before the period arrives; and if symptoms of abortion appear, notwithstanding, they should take the cordial constantly with the female syrups, as much as is necessary, till the threatened danger is averted. Many women who were in the constant habit of aborting at a certain period, by the use of this medicine have gone out their full time without the least difficulty. By this means, and observing the regimen prescribed, they may escape the misfortune of miscarriage.

Though we recommend due care for preventing abortion, we would not be understood as restraining pregnant women from their usual exercise. This would generally operate quite the contrary way. Want of exercise not only relaxes the body, but induces a plethora, or too great a fulness of the vessels, which is one principal cause of abortion.

When abortion cannot be prevented, the next indication is to conduct the patient safely through the process, by directing our immediate attention to the hæmorrhage. Astringent injections, composed of alum, oak bark, crane's-bill, kino, &c., and cold applications to the loins, are often employed in floodings; and when the hæmorrhage is slight, these will immediately prove beneficial; but in floodings without any remission, they do not appear calculated to afford much relief. In such cases it will be well to trust to the formation of a coagulum; enjoining rest, giving an anodyne at bed time, and keeping the bowels open with some gentle laxative. But if these means have not the desired effect, and the woman becomes exposed to imminent danger, an emetic, as of lobelia, may be given; the benefit of vomits in this case would seem to be, to drive the circulation into the extremities, and produce an equilibrium of action throughout the system. After this, powerful astringents may be administered internally; as gun kino, from eight to ten grains, repeating the dose every three or four hours, according to the urgency of the case. The sweet-bugle, crane's-bill, and such like, are also equally applicable. In the mean time, clysters must be used to keep the bowels open, and as soon as the hæmorrhage is stopped, give a dose of castor oil. Cold applications to the back and external parts must not be neglected. The introduction of a smooth piece of ice into the vagina, has often a speedy effect in arresting the flooding; but should not be continued so long as to cause pain. The administration of fox-glove has often an excellent effect in this species of hæmorrhage.

Other precautions are to be attended to; cool air should be allowed to circulate in the patient's chamber; keeping the heat of the body at a low temperature; absolute rest in a horizontal position, which must be continued during the whole process; and cold acidulated liquors for common drink.

Sometimes the hæmorrhage is kept up by some portion of the contents of the womb remaining partly within and partly without its cavity; when this is the case, it should be removed by careful manual interference.

For some days after abortion, the patient should be confined to her bed, as getting up too soon is apt to produce a debilitating discharge. Women disposed to abort, should the more sedulously avoid the exciting causes of abortion, at those times when it is most apt to take place, and guard themselves against it by a proper use of the mother's cordial.

MIDWIFERY PROPER.

[The science of obstetric medicine has been, from its earliest history to the present day, the subject of the most extravagant speculations and the wildest and most unphilosophical hypotheses, which have arose and disappeared, one after another, in rapid succession. Ambitious and theoretical minds have, at all periods, been earnestly endeavoring to establish their own favourite systems and speculations, that they might gain for themselves a fame which should endure through all time. But as just retribution, sooner or later, overtakes them, their systems are crumbled to pieces by that mighty avalanche, truth and public opinion. These men are sometimes permitted to outlive their anticipated fame. But when we contemplate the history of those men who have approached this subject with caution, endeavoring to assist nature when she lags, or when by some freak or accidental event, she deviates from her ordinary course of things, we feel that they have stamped their fame with indelible dies which time can never obliterate.]

There are at the present time, several persons in this community, who are endeavoring to make us believe that the arduous and responsible duties of obstetric medicine, or the practice of midwifery, rest upon, and should be performed exclusively by the female sex. We have no desire to depreciate the talents of females, nor their ability to become efficient midwives, but would ask those who talk so long and wisely on this subject, what they expect will be gained for the relief and comfort of those who are most interested in the matter, by thus unceremoniously handing this subject over to the female sex? All they possibly can gain will be constant discomfort and the frequent loss of health. But to listen to their argument: they contend that the presence of a physician, or accoucheur, in the lying-in chamber, frightens the female and frustrates the operations of nature, causing the labor which would, under other circumstances, be simple and easy, to become hazardous and difficult. I have attended nearly one thousand cases of confinement, and have never yet seen these effects produced, although I have, in numerous instances, been obliged to employ the forceps to effect delivery, on account of malformation or some other imperious circumstances. Another objection these persons raise to men practising in this department of medicine, is what they are pleased to term our want of feeling for, and roughness toward the female during the time of labor. I have no doubt but the friends of the above sentiments, speak from the experience of their own practice. But as far as my observation teaches me, the laboring female has received as kind and humane treatment from her male attendant as could have been bestowed by the midwife; and the man who should abuse the feelings and rights of women, while in the capacity of his profession, would be visited by the stern arm of offended justice and the merited frowns of an insulted and indignant community.

It is admitted that, "in extreme cases, a physician should be employed." If you admit the necessity of calling a medical man at one time, you argue that of his attending at all times. I believe the truth, with regard to these pretended friends of the rights of mothers, to be this: they are unwilling, as well as incompetent to perform the arduous and responsible duties of a faithful accoucheur, and would rather see the female, in all weathers and under all circumstances, leave her family and domestic duties to discharge those which both reason and common judgment say belong to the honest and upright physician.

In a work recently published, called the "Reformed Practice," appears a letter purporting to have been addressed to the author of the above publica-

tion, by a midwife, to which he has prefixed the following prefatory remarks:

"Mrs. Stebbins has made donations to the author of this work, (the Reformed Practice,) to promote the cause of midwives, at one time, \$10, and at another \$100, with a promise that she will leave him a legacy to aid in the dissemination of the principles of the reformation." But neither money nor promises can purchase the writer of this article.

We will now let the ladies speak for themselves on this subject. In the city of New-York there is an asylum for lying-in women, under the management of ladies. In the constitution of this society, article iii., it reads: "The business of this society shall be conducted by a board of managers, constituted of thirty-three females;" this board appoints one physician and matron who live in the institution. Again, in article iv: "The managers shall appoint a board of six superintending and consulting physicians." What other evidence is wanted to show the opinion entertained by the ladies with regard to men practising midwifery? The matron of this institution told me when conversing on this subject, that she did not consider herself capable of taking charge of all cases of confinement, although she had then been in the asylum many years.

I will mention a case that the whole world knows of and believes to be true. Queen Victoria did not consider that she was placing herself in bad and rough hands when she was confined, for she absolutely secured the attendance of three accoucheurs. She looked to man as her protector and not as her destroyer.

I have already transcended the limits prescribed for this subject before entering upon its discussion. My object has been, not only to defend the rights of man, but, more particularly the rights of woman. Lean upon him as your protector, and not view him as the monster some persons would have him appear to be. Let both walk hand in hand and they will perform those high duties which the Sovereign Ruler of the universe has designed for them.

Midwifery proper will now be considered.]

Many diseases proceed from the want of due care in child-bed; and the more hardy part of the sex are apt to despise the necessary precautions in this state. This is peculiarly the case with young wives. They think when the labor pains are ended, the danger is over; but in truth it may only then be said to be begun. Nature, if left to herself, will seldom fail to expel the fœtus; but proper care and management are certainly necessary for the recovery of the mother. Great mischief, however, may be done by too much, as well as by too little care. Hence females who have the greatest number of attendants in child-bed, generally recover the worst. But this is not peculiar to the state of child-bed. Excessive care always defeats its own intention, and is generally more dangerous than none at all.

During actual labor, nothing of a heating nature ought to be given. The woman may now and then take a little panada, toast and water gruel, and such like. Spirits, wines, cordial-waters, and other things which are given with a view to strengthen the mother, and promote the birth, for the most part only tend to increase the fever, inflame the womb, and retard the labor. Besides, they endanger the woman afterwards, as they occasion violent and mortal hæmorrhages, or dispose her to child-bed fevers.

[*Signs of Pregnancy.*—The female is generally conscious of her situation when in this interesting condition; this intelligence is communicated to her by the various symptoms which she experiences soon after the event of conception. Some of these symptoms, or signs, we shall enumerate in their order of occurrence. First, cessation of the menstrual flux, which generally exists from the time of conception till the female is confined. Second,

morning sickness, which generally troubles the female, more or less, soon after conception. Third, enlargement of, and pain in the mamma, or breasts, with a dark circle, called the *areola*, extending around the nipple; the abdomen by this time is considerably enlarged. About the fifth or sixth month the pulsations of the foetal heart may be heard by applying the stethoscope to the abdomen of the mother. At this period of gestation, the female generally feels the motions of the child.

The motions of the child and the pulsations of its heart, are positive signs of pregnancy. As enlargement of the abdomen, with some of the other presumptive signs may be produced by other causes than pregnancy, the physician should never give a positive opinion unless he can hear the pulsations of the foetal heart, and knows that the female has felt the motions of the child, or unless the areola around the nipple is distinctly seen.

Parturition, or Delivery, is that process by which, at the end of nine calendar months from conception, the womb expels its contents; and may be classed under four heads, viz., 1st, Natural Labor; 2nd, Difficult Labor; 3rd, Instrumental Labor, and 4th, Manual Labor.]

Natural Labor supposes three things: 1st, that the crown of the head presents; 2nd, that there shall be sufficient room in the pelvis to admit of the ready descent of the child in that direction which permits the back part of the head to emerge under the arch of the pubis; 3rd, that there be parturient energy adequate to the expulsion of the contents of the womb without manual interference, and without danger either to the mother or child; and 4th, that the process of delivery be completed within twenty-four hours.

Symptoms Preceding Labor.—For several days before the actual existence of labor, there are certain premonitory symptoms, which by women who have borne children, are viewed as precursors of that eventful hour which many of them so much dread. Among these are,

Restlessness, particularly at night, which frequently precedes delivery for days and weeks. The mother's cordial effectually calms and alleviates this troublesome complaint.

Subsidence of the womb and abdomen is not an unusual monitor of the approach of suffering. It may be viewed favorably, inasmuch as it indicates room in the pelvis.

A *glairy mucous secretion* from the neck of the womb and vagina, popularly termed show, sometimes occurs for days before the more urgent symptoms of labor. It is often streaked with blood, and seems to lubricate the parts concerned in parturition.

Irritability of the bladder and rectum, demanding their frequent relief, is another occasional sign of labor.

[*Symptoms Accompanying Labor*.—A few hours, and sometimes days, before labor commences, the abdomen falls a little and the womb sinks lower into the pelvis. These are good signs, as they show that the pelvis is large in proportion to the child. The symptoms by which a woman thinks she is soon to be delivered are, pains in the back, abdomen, &c. They come on in paroxysms, caused by the contraction of the womb; there are frequently pains darting down the thighs, and sometimes about the organs of generation; there is a discharge, commonly called a show, of a white slimy substance, and sometimes streaked with blood; this seems to lubricate the parts that are engaged in delivery.

There are slight contractions of the uterus that resemble true labor pains; they annoy the woman more than real labor; to quell this premature action of the womb, the mother's cordial must be given; this acts like a charm.]

When the mouth of the womb is considerably dilated, expulsive pains,

sometimes termed forcing, or bearing down pains, commence. These pains observe regular intervals of ease, which become shorter, whilst the pains, in an inverse ratio, increase in their duration and severity; and now it is that the abdominal muscles and diaphragm afford their assistance.

During each expulsive effort a larger portion of the membranes, distended with the waters, is forced through the mouth of the womb, performing to it, and all the parts through which the child is to pass, the office of an easy but powerful wedge. With these pains there is often a frequent disposition to empty the rectum; and sometimes this inclination is so harassing as to require the administration of a small clyster, with half a drachm of the tincture of opium.

Vomiting is a common attendant on parturition pains. It principally occurs during the dilating pains, and unquestionably assists in the relaxation and dilatation of the mouth of the womb. If this vomiting should continue severe, after the mouth of the womb is sufficiently dilated, and a substance like dark coffee grounds is ejected, means must be used to allay it.

The Process of Natural Labor.—The process of natural labor is at once so simple and beautiful, that it cannot fail to excite the admiration of those who look beneath the surface of the operations of nature.

When the neck of the womb becomes reduced to the thickness of the other parts of that organ, it begins to open, and as soon as it can admit the extension of any part of the membranes distended with the liquor, the pains rather assume the expulsive character, and there will be a sensible bearing down of the whole uterine tumor. Successive paroxysms of pain dilate the mouth of the womb more and more, while the protruded membranes, distended like a tense bladder, fill up the opening, and perform the office of an inimitable wedge, till the womb and the entrance to it form one continuous passage. Soon after this the membranes burst during a strong pain, having previously contributed to the dilatation of the vagina; and with the escape of the waters there is sometimes a temporary suspension of pain, and the head of the child falls into the upper aperture or brim of the pelvis, or descends into the cavity; but more frequently this advance is not made until several pains have followed this occurrence.

The contractions of the womb recurring with augmented frequency and force, gradually propel the fœtus along the passages, until the head presses on the perinium, which is put on the full stretch; and also against the soft parts which it protrudes. These by degrees dilate, and permit the back part of the head to emerge under the arch of the pubes, and with the complete protrusion of the head, the other parts of the body are expelled, sometimes by the same pain, but more frequently by the one which speedily follows.

The same pain that expels the child, now and then detaches and expels the placenta or after burthen, commonly so called; but more frequently the womb remains at rest for about a quarter of an hour, when it resumes its contractions, and throws it off with the adherent membranes.

This constitutes the interesting process of natural labor, in which the womb requires no officious interference, but which, when forced to submit to any, she often resents, by harassing the busy meddler with some untoward occurrence.

One or two precautions, are here necessary; when the head has come into the world, we should endeavor to bring the shoulders into the passage during the same pain, otherwise the external orifice might contract around the neck of the child, and create difficulty. Afterwards, when the bulk of the child is passed, we should not suffer it to be thrown out suddenly, but withdraw it slowly, in order that the womb may contract gradually.

As soon as the child is thus brought into the world, and manifests unequivocal signs of life, the navel-string must be tied, with a string or piece of

tape, at about the distance of three inches from the navel, and again tied at about three inches from the first. The navel-string may then be cut with a pair of scissors, between these ligatures. All this should be done in the most delicate manner, under the bed clothes, without exposing either the mother or child.

[It is necessary that both ligatures be made secure, for by leaving them loose children have bled to death; there is danger also of the mother bleeding to death. I have seen children that have died by bleeding from the cord. I saw one child fourteen days old bleed to death in spite of all that could be done; the cord had sloughed off. I saw a woman bleed from the cord so much that I was fearful she would die; the blood was forced out like coming from a syringe; this happened in consequence of high authority, stating that there was no danger in leaving the umbilical cord untied; but I was taught a lesson that nearly cost the woman's life.]

Management of the After Birth.—The management of the placenta constitutes a very important part of natural labor; and if the womb be not permitted to empty itself gradually, some untoward and alarming circumstances may occur in this stage of delivery. Generally from fifteen to thirty minutes elapse between the birth and the expulsion of the placenta. The woman then complains of a slight pain in the back or abdomen, and this secondary, contraction of the womb detaches the placenta, although it but rarely expels it from the passage; whence, however, it may usually be easily removed; by coiling the cord round two of the fingers of the right hand, whilst, guided by the cord, the thumb and index finger of the other hand should be passed up to its insertion in the placenta, which, if it can be felt, is a pretty certain indication of the detachment of the whole mass from the sides of the womb. By this means, also, the navel-string is prevented from breaking off, and a firmer hold of the placenta is obtained.

[There should be no traction made until the placenta is felt in the vagina, or mouth of the womb; under such circumstances you may extract it; you should put your hand on the abdomen, and if you feel the uterus contract hard down, then examine for the placenta; without this it will be no use, except when there is profuse flooding; if your patient is sinking fast, you are justifiable in introducing your hand in the womb and extracting the placenta. This requires nerve on the part of the physician, for torrents of blood will frequently gush by his hand and arm. In this case the placenta is partly detached and the open vessels are bleeding.]

To prevent the possibility of inverting the womb, or from its occurrence without our knowing it, the placenta should be permitted to slip by the fingers of the left hand into the vagina; and the withdrawing of it should always be done in the easiest and most gentle manner possible. The hand of the accoucher should afterwards be laid on the abdomen, and the forefinger introduced into the vagina, to ascertain, whether the womb is well contracted, and in its natural place. This is of much consequence, as by neglect of it, inflammations take place in the womb which often prove fatal. The pulse should now be felt, lest internal hæmorrhage, redistending the womb, may be going on, to the endangering of the patient's life.

It is of great importance that a bandage be passed over the region of the womb; The woman should then have her soiled linen withdrawn; and if she be able, and there is no flooding present, she should stand on her feet, or walk a few steps, which will assist in discharging off the clotted blood that may remain unexpelled, and tend to prevent after pains. She may then be put in bed, without any exertions of her own, and some light food given her in small quantities, when she may be left to rest.

TEDIOUS LABORS.—When the labor proves tedious and difficult, it will generally prove a sufficient relief to give the woman freely of the mother's cordial. This will allay the irritating, fruitless, and false pains, and preserve the strength of the patient for a more powerful and successful effort, which will arrive in due time, and must not be hurried. If inflammation should take place in any part of the abdomen, the anodyne wash should be applied. An emollient clyster ought frequently to be administered. If the pulse seems to sink, and the woman is greatly exhausted, a draught of generous wine, or some other cordial, may be given, but not otherwise. If stronger anti-spasmodics are necessary, castor, musk, &c., may be administered. Lubricating oils, or fresh butter, applied to the parts, are also of use.

In what is termed a *dry birth*, *i. e.*, where the membranes have broken and the waters are discharged previous to the commencement of parturition, delivery is rendered more difficult. When this is the case, the oils, as recommended above, are more peculiarly necessary.

DIFFICULT LABORS.—This includes labor in which the process is prolonged beyond twenty-four hours, the head of the child presenting.

Labors are rendered difficult by the inert or irregular action of the womb—which may be caused by too great a distention of the womb; partial action of the womb; rigidity of the membranes; imperfect discharge or dribbling of the waters; shortness of the navel-cord; weakness of the constitution; fever; want of a due degree of irritability; passions of the mind: or, general deformity.

Labors are rendered difficult by the rigidity of the parts to be dilated—which may proceed from the first child; advancement in age; too early rupture of the membranes; oblique position of the mouth of the womb; fever or local inflammation; extreme rigidity of the neck of the womb; and uncommon rigidity of the external parts.

Labors are rendered difficult from disproportion between the dimensions of the cavity of the pelvis and the head of the child—which may be caused by the original smallness of the pelvis; distortion of the pelvis; head of the child unusually large, or too much ossified; head of the child enlarged by disease; face inclined towards the pubis or front bone; presentation of the face; the head presenting with one or both arms.

Labors are rendered difficult by diseases of the soft parts—as suppression of urine; stone in the bladder; concrecence of the neck of the womb; cicatrices in the vagina; adhesion of the vagina; tumors; enlargement of the ovaria; rupture of the womb; or venereal disease.

NOTE.—The unwarrantable and over-officious disturbance of the natural progress of labors, and especially the premature rupture of the membranes, is the most general cause of difficulties in parturition.

Women are to be relieved in difficult labors, by regulating their general conduct; by lessening or removing the obstacles to the effects which should be produced by the pains; and (the last resort) by the use of instruments.

The intentions in the use of instruments, are—1. To preserve the lives both of the mother and child. 2. To preserve the life of the mother. 3. To preserve the life of the child.

The instruments commonly used for the purposes of delivery, are, the *forceps*, together with bandages.

There are three things to be considered with respect to the forceps, and to the use of instruments in general, *viz.*: to make an accurate distinction of those cases which require their use; of those cases which allow of their use; and of the manner in which they ought to be used.

INSTRUMENTAL LABOR.

Directions and admonitions in the application and use of the forceps.—It has long been established as a general rule, that instruments are never to be used in the practice of midwifery; the cases in which they are required are therefore to be considered merely as exceptions to this general rule. Such cases, however, seldom happen, and when they do, no instrument is ever to be used in a clandestine manner.

The first stage of labor must be completed, that is, the mouth of the womb must be dilated, and the membranes broken before we think of applying the forceps. The intention in the use of the forceps is, to preserve the lives both of the mother and child, but the necessity for using them must be decided by the circumstances of the mother only. It is meant, in the use of this instrument, to supply with it the insufficiency or want of labor pains, but so long as the pains continue, we have reason to hope they will produce their effect, and shall be justified in waiting.

Nor doth the cessation of pains always prove the necessity of using the forceps, as there may be a *total* or a *temporary* cessation of the pains. In the former, the pulse, the countenance, and the general appearances of the patient, indicate extreme debility, and resemble those of a person worn out with disease or fatigue; but in the latter, there are no alarming symptoms, and the patient often enjoys short intervals of refreshing sleep.

Every rule for the time of applying the forceps, or for preventing its rash and unnecessary use, must be subject to the judgment of the person who may have the management of any individual case. It may be well, however, generally to wait at least six hours after the cessation of pains, before we allow of their use. Yet care should be taken that we do not, through an aversion to the use of instruments, too long delay that assistance we have the power of affording with them.

The difficulties which attend the application and use of the forceps, are far less than those of deciding upon the proper time when, and the cases in which, they ought to be applied. The lower the head of the child has descended, and the longer the use of the forceps is deferred, the easier in general will their application be, the success of the operation more certain, and the hazard of doing mischief less. The forceps should always be applied over the ears of the child. The ear of the child which can be felt, will be found towards the front bone; as the ears are not turned to the sides of the pelvis till part of the hind head has emerged under the arch of the front bone.

When you have determined on using the forceps, and explained the necessity of using them to the patient and her friends; [she is to be placed on her back, at the edge of the bed, with each foot in separate chairs, or in the laps of persons sitting by the side of the bed, so as to give as much room as possible;] and the instruments, warmed in water and smeared with some oily application, are to be laid conveniently by you.

The following rules are given on the presumption that the head of the child presents, with the face inclined, or verging towards the hollow of the sacral bone:

Application.—First, carry the fore finger of the right hand to the ear of the child, if possible. Then take the right blade of the forceps by the handle in the left hand, and conduct it between the head of the child and the finger already introduced, till the point reaches the ear. The farther introduction must be made with a motion resembling a slight degree of semi-rotation, and the point of the blade must be kept close to the head of the child. [The blade so introduced must be carried backwards as far as possible without doing violence to the soft parts.] If the introduction of either

of the blades is hindered, we must withdraw them a little to discover the obstacle, and never strive to overcome it with violence.

When the first blade is introduced, it must be held steadily in this situation, as it will be a guide to the introduction of the second blade, which must be introduced in the same cautious manner as the first, only changing hands, till the lock reaches the soft parts below. When the second blade is properly introduced, its situation will be opposite the first.

[The blade with the pivot on must be first introduced by the left hand; the one with the nick in to fit the pivot must be applied over the one introduced, and if rightly applied the lock will come together without any difficulty;] care being taken that nothing be entangled in the lock of the forceps, by carrying the finger round it. It is convenient to tie the handles together when locked, with force sufficient to keep them from sliding or shifting their position. If the handles, when locked, are at a great distance from each other, they are not well applied, and may slip. But in these estimations, allowance must be made for the different dimensions of the heads of children.

The forceps will never slip if judiciously applied, if the case be proper for their use, and we act circumspectly with them. The difficulties in their application arise from attempting to apply them too soon; from passing them in a hurry, or in a wrong direction; or from entangling the soft parts of the mother between the instrument and the head of the child. Of course, we are always to be guarded against these circumstances.

Use.—There is no occasion, and it would be hurtful to attempt to change the position of the head, when the forceps are applied, before we begin to extract, for if the action be slow, the head of the child will turn in the same manner as in a natural labor. Therefore the instrument must also change its position according to the descent; the handles will also be raised, as the child advances towards the front bone.

The first action with the forceps must be to bring the handles, firmly grasped in one or both hands, slowly towards the pubes, till they come to a full rest. After waiting till the pains return, or an imaginary interval if there should be a total want of pain, the handles are to be carried back again to the *perinæum*, or fork, in the same cautious manner, using at the same time a certain degree of extracting force. The subsequent actions must be from handle to handle, or by simple attraction.

By the repetition of these actions, always directed according to the position of the handles, with their force increased, diminished, or continued, according to the exigency of the case, we shall in a short time perceive the head of the child descending; when this is the case, the force of the action with the forceps must be abated, and as that advances, the direction of the handles must change by degrees more and more to each side, and towards the pubes. The lower the head of the child descends, the more gently we must proceed, in order to prevent any injury or laceration of the external parts.

In some cases, the mere excitement occasioned by the application of the forceps, or the very expectation of their being applied, will bring on a return or an increase of the pains sufficient to expel the child without their assistance. In other cases we are obliged to exert considerable force, and to continue it for a long time; so that one operation may be safely and easily finished in twenty minutes, or even a less time, and another may require more than an hour for its completion, and the repeated exertion of very considerable force. In some cases it happens also, that the obstacles to the delivery exist at one particular part of the pelvis, and when that is surmounted, the remainder of the operation will be easy; but in other cases there is some difficulty through the whole course of the pelvis.

[Great care must be taken in introducing the forceps; the accoucheur must remember the shape of the pelvis, the shape of the instrument that he is using, and all his movements must be in strict accordance with them. Great care must be taken that the internal parts of the mother do not get entangled with the instrument; be careful that the womb does not get between the blades of the forceps and the head of the child. It sometimes requires considerable force to deliver; when you first begin to deliver, the handles of your forceps will be in nearly right lines with the body of the mother; as you extract, raise the handles of your instrument gradually; be careful that the instrument does not ride heavy against the bones of the pelvis; when the head of the child is born, they are to be removed, and the remaining circumstances managed as if the labor had been natural.]

NOTE.—It would be very desirable that every student should have an opportunity of seeing the operation with the forceps performed before he goes into practice; but that is not always possible. Yet if he has been properly instructed in the principles of the application and use of the forceps, reflects seriously before he determines on the operation, and proceeds slowly but not timidly in it, he can hardly fail to succeed. Hurry in any operation is a very common sign both of want of information and of fear.

[*Manual Labour*, is that part of midwifery which requires on the part of the physician some interference, and without it there would be danger to the life of the mother or child, or even both; this generally consists in changing the presentation and extracting the child.]

The signs of preternatural presentations are very uncertain, and cannot be determined till we are able to feel the presenting part. We may then form our judgment by the following marks: The head may be distinguished by its roundness, firmness, and bulk; the breech may be known by the bulk, the buttocks, and by the parts of generation; the foot by its length, by the heel, the shortness of the toes, and the want of a thumb; and the hand by its flatness, by the thumb, and the length of the fingers.

In the *first order* of preternatural presentation, are included the breech, the knee, and one or both legs. Such labors are not to be interrupted, but allowed to proceed as if the presentation were natural; unless the necessity of giving assistance should arise from some circumstance independent of the presentation.

[When the body is born and the head is in the pelvis, you should then pass in the first and second finger of the left hand, and put them astride of the nose; then press against the child's face and bring the chin down to its neck; in that way you make more room in the pelvis; do not let the head rest here any longer than is absolutely necessary, for the head of the child is pressing against the pelvis, and the cord is between them; in this way the circulation is cut off. Be careful that you do not put your fingers in the mouth of the child, (although you are frequently told to do so by those that ought to know better) for the air is certain to pass by your finger into the child's lungs and inflate them; frequently the child will die from suffocation before it is delivered; I had it happen to me, and it arose from bad advisers; I therefore raise a warning voice against such advisers and such practice. A fact is worth a thousand theories.]

In first labors, the child, unless it be small, will not unfrequently be born dead, when the breech or lower extremities present; but in subsequent labors, they will usually be born living, if no other untoward circumstance occurs. Injuries of the presenting part will sometimes occur, particularly of the penis and scrotum; but these, although alarming, will be soon recovered by a soothing treatment.

Should there be reason to think the child dead, or the powers of the mother insufficient to expel it, we must then give such assistance as may be required. This may be given with the hand, or with a blunt hook or crotchet, hitched in the groin of the child; or by passing a ligature round the bent part of the child at the groin, with which we can hardly fail to extract it. But every assistance of this kind must be given with discretion, and we must first be convinced of the necessity before we interfere. Should a child presenting the breech advance but slowly, it is better to be satisfied with this slow progress than to use violent efforts with the child; or we might break or dislocate the thigh bone, or separate the bones of the pelvis of the child, which might occasion future lameness.

In the *second order* of preternatural presentations are included the shoulders, the elbows, one or both arms, and the face.

In all these precautions we shall be under the necessity of turning the child; but as they may be attended with circumstances widely different, it is necessary to make the following distinctions:

1. When the mouth of the womb is fully dilated, the membranes unbroken, or the waters lately discharged, an upper extremity being perceived to present before the womb is contracted.

[I am doubtful if the presenting parts can be ascertained until the waters have escaped.]

In cases of this distinction, or whenever there is a necessity of turning a child, the position should be such as to allow us a free and dexterous use of our hands. The external orifice and vagina is then to be dilated with the fingers reduced into a conical form, acting with a semi-rotary motion of the hand; this dilatation must be made slowly, in imitation of nature. The external orifice should be amply distended before the hand is carried farther. The hand must now be slowly conducted to the mouth of the womb, which being wholly or sufficiently dilated, the membranes must be broken, either with the finger or a grasp of the hand.

The hand must then be passed along the sides, thighs, and legs of the child, till we come to the feet. If both feet lie together, we must grasp them firmly in our hand; but if they are distant from each other, and we cannot conveniently lay hold of both feet, we may deliver by one foot without much additional difficulty.

Before we begin to extract we must be assured that we do not mistake a hand for a foot. The feet must be brought down with a slow, waving motion, into the pelvis, when we are to rest, and wait till the womb begins to contract, still retaining them in our hand. When the action of the womb comes on, the feet are to be brought lower at each return of pain, till they are extracted through the external orifice, and the labor may then be finished, partly by the efforts of the mother, and partly by art.

The most favorable position in this presentation, is when the toes of the child are turned towards the sacral bone, which brings the back of the child towards the belly of the mother; and all other positions of the child must be gradually turned to this, as the body is extracting. This position will be found advantageous in delivering the head.

When the feet of the child have passed through the external orifice, wrap them in a cloth, hold them firm, and wait till a pain comes on, during the continuance of which gently draw down the feet. When the pain ceases, rest, and proceed in this manner through the delivery, assisting the efforts of the patient, but not making the delivery wholly artificial.

When the breech reaches the external orifice, the child must be extracted slowly, and great caution observed, lest the soft parts below be lacerated. When the navel cord appears, a small portion of it is to be drawn out, to

slacken it, and thereby lessen the chance of compression, or prevent the separation of it from the body of the child; after this the operation should be finished as speedily as possible with safety, if the circulation in the cord is obstructed.

If the child should stick at the shoulders, the arms must be successively brought down, by raising the body the opposite way, and successively bending them at the elbow very slowly, lest they should be broken. The rest of the delivery must be effected as under the first order.

In some cases there may be a necessity of extracting the child speedily in order to preserve its life; but we must also recollect that the child is often lost by endeavoring to extract it too hastily. Throughout this operation we should act with deliberation, assist nature, move when she moves, and we cannot go wrong.

2. The second distinction is, when the membranes break in the beginning of labor, the mouth of the womb being a little dilated.

In the management of this we are first to ascertain the presenting part; and if, together with the arm, the head is perceived by a common examination, there may be no occasion to turn the child, such case only constituting a variety of natural labors.

But if the case should be such as to require the child to be turned, we should wait for the spontaneous dilatation of the mouth of the womb, unless urgent circumstances render assistance necessary, which should always be rendered in imitation of nature. The mouth of the womb is always to be considered as completely dilated when we judge it will allow of an easy introduction of the hand.

When we have fixed upon the proper time, and begin the operation, the external orifice must be dilated in the manner before advised. It is generally most convenient to pass the hand between the body of the child and the pubis, or front bone, the feet being most commonly found lying towards the belly of the mother.

In cases which come under this distinction, the womb is seldom contracted very strongly upon the body of the child, but always in some degree. But the difficulties which may occur in the operation of turning the child, in these cases, will be fully explained under the following distinctions:

3. The third distinction exists, when the mouth of the womb has been fully dilated, the membranes broken, and the waters long discharged; the womb being at the same time strongly contracted, and the body of the child jammed at the upper aperture of the pelvis.

The difficulty in the management of these cases depends upon the degree of contraction of the womb, and upon the distance or awkward position of the feet of the child, but chiefly upon the former circumstance. The womb is in some cases contracted to a globular, and in others to a longitudinal form; and it is always easier, with an equal degree of contraction, to turn the child when the womb is in the globular form.

When we are called to a case of this kind, we should not form an opinion hastily, or proceed to deliver the woman immediately, until we understand the case by thorough examination. We shall be able to judge in what part of the womb the feet of the child lie, if we consider whether it be the right or left hand which presents, which may be known by the direction of the thumb and palm of the hand.

But the contraction of the womb is the principal difficulty to be surmounted, and the danger in turning the child is in proportion to the difficulty. This danger consists in rupturing the womb. The contraction of the womb is of two kinds; first, the permanent contraction, in consequence of the waters having been long drained off, which may occur when there has been little or no pain; and second, the extraordinary contraction arising from the action of the womb, returning at intervals, and always attended with pain.

The hand must be introduced with a degree of force sufficient gradually to overcome the permanent contraction of the womb, or the operation could never be performed; but we ought not to proceed in our attempt to turn the child while labor is present, and the womb is acting with violence, as the hand would be cramped, or the womb ruptured.

[I have had my hand, when in the womb, benumbed by the contraction of the uterus so much, that I have had to withdraw, and change hands; but with all these obstacles, and as many more as may appear, it must be done, or both mother and child will die.]

The action of the womb is rendered more frequent and strong in this stage, by the generally increased irritability of the patient. Therefore, before we attempt to deliver, it will be prudent to lessen this irritability. This will be effected by the free administration of the "mother's cordial," and by the use of clysters. Sleep at this time is very favorable. We may now proceed to the delivery.

Without regarding the arm which presents, the hand must now be introduced in the manner before directed, and conducted slowly into the womb, if there be sufficient room. But if the child be jammed at the upper aperture of the pelvis, the hand cannot be introduced; we must then fix our fore finger and thumb in the form of a crutch in the armpit of the child, and pushing the shoulders towards the head, and towards the body of the womb, we must raise the body of the child by degrees till there be room for the introduction of the hand. If while we are introducing our hand, we perceive a pain come, we must not proceed till that is abated. The hand should also be laid flat during this contraction, lest the womb be injured by its action on the knuckles. In this manner we are to proceed, alternately resting and exerting ourselves, till we can lay hold of one or both feet.

There is sometimes much difficulty in getting to the feet, and in extracting them, especially when the womb is contracted in a longitudinal form. In such cases it is often convenient, when we can reach to the knees, to bend them cautiously, and bring down the legs and feet together. Before we begin to extract, however, we must be well assured that the parts we have hold of are the feet; and then we must extract them slowly and steadily, for if we hurry they may slip from us, and return again.

When the feet are brought down, if there be difficulty in extracting them, we must endeavor to slide a noose, first formed upon our wrist, over the hand, to secure the feet, by which the hazard of their return will be prevented, and the succeeding part of the operation much facilitated. When the noose is fixed over the ankles, we must pull by both ends of it with one hand, and grasp the feet with the other, but we must not proceed hastily.

4. The fourth distinction is, when, together with any of the circumstances attending the foregoing distinctions, there is a great disproportion between the size of the head of the child, and the dimensions of the cavity of the pelvis.

The degree of difficulty in these cases is greater or less according to the degree of disproportion; but the difficulty of extracting any part of the body of the child is little, compared with that which attends the extracting of the head. We will, therefore, suppose the body of the child to be brought down, but that the head cannot be extracted by any of the methods before recommended. The force with which we endeavor to extract, must then be increased, till it is sufficient to overcome the difficulty or resistance; beginning, however, with moderation, and gradually increasing our efforts, according to the exigencies of the case.

If the head should not descend with the force which we judge can be safely exerted, we must rest. We may then renew our attempts, extracting from side to side, or backwards or forwards, as may best conduce to ease

the head through the distorted pelvis, alternately resting and endeavoring to extract. But if the head should descend in ever so small a degree, the force is not to be increased with a view of finishing the delivery expeditiously, but we must be satisfied with our success, and proceed circumspectly. When the head once begins to descend, there is seldom much subsequent difficulty in finishing the delivery, as the cause of the difficulty usually exists at one particular part of the pelvis. Should the head rest several hours in this situation, no inconvenience would thence arise to the mother.

It may be presumed, when the head of the child has been wedged in for a long time in the position we are supposing, and great force has been used to extract it, that there is little reason to expect the child should be born alive; yet such instances sometimes occur.

[There is another and more formidable case that I shall say a few words about, although volumes might be written. That is, when the placenta is attached over the mouth of the uterus. You may suspect this if, in the latter stages of pregnancy, by paroxysms of longer or shorter intervals, blood comes from the womb, and frequently in large quantities. If this increases so that there is absolute danger of the mother, and if from the above cause, delivery must be effected. If you pass a finger into the neck of the womb, you can, most generally, feel the soft placenta. If you are satisfied that is the case, you must then prepare yourself and proceed as before directed in turning, until you get to the womb; you must gently, but resolutely, insinuate your hand into the womb through the placenta; go on until you can grasp the feet of the child, then deliver in the same way as before described.]

There are certain things here to be observed: first is the placenta attached over the mouth of the womb? second, is there danger of the life of the mother in delaying? If this is apparent to you, the delivery must be effected. I was once placed in this situation; torrents of blood were running away from the woman. I saw her sinking and I thought nearly dying. I began the delivery, and when I had my hand in the placenta, blood was gushing by my arm profusely. My patient was blanched as white as snow. To stop I dare not; to go on I must. I finally succeeded in delivering the woman, and she did well. This requires more skill and nerve than any part of midwifery.]

If the difficulty of extracting the head arises from its enormous size, occasioned by some disease, as dropsy in the head, &c., these methods steadily pursued will answer our intention; as by a prudent use of the force in our power, the integuments will burst, or even the bones be broken. The necessity for the use of forceps very seldom occurs in these cases.

Under these circumstances, should it be absolutely necessary to lessen the head of the child, a perforation may be conveniently made behind either of the ears, or where we can most conveniently fix the point of the perforator. A portion of the contents of the head will then be evacuated, when the skull may be compressed to the required size.

Should the body be separated from the head by the force we have used, there will be no occasion, for this reason alone, to act harshly or rashly. But if it should be absolutely necessary to extract the head speedily, on account of the situation of the mother, the general rules for lessening the head must be applied, and the head may be confined to a proper situation by compressing the abdomen with a napkin passed across it, or by the hands of an assistant.

Familiar Observations.—The physician should by all means ingratiate himself into the confidence of the woman, by kindness, indulgence, attention, even in trifling matters, and by appearing interested in her welfare; for want of confidence deranges every thing. Rough and overbearing conduct is cer-

tain to disgust the woman and frustrate all her efforts. The physician should recollect that this operation is peculiarly the business of nature, and that his province is only that of her hand-maid, when she alone is unequal to the performance, but never to direct her.

The woman, if she have regard to cleanliness, should prepare herself for the occasion, by putting on clean linen, and fastening it up about her waist, while a sheet or other cloth should be fastened around her, reaching down far enough to protect the bed-clothes from being soiled. After delivery, this is removed, and the clean linen suffered to drop down, which leaves her already prepared for rest. Another circumstance should also be attended to, which may prevent disagreeable consequences, that is, to empty the rectum and bladder of their contents, when labor is expected; otherwise the pressure of the fœtus might cause their evacuation during that period.

The woman should be allowed to choose her own position in which to be delivered, whether it be while lying on her back or side; sitting on the edge of the bed, or in a chair; in a standing position, or on her knees. It will greatly assist the pains if the woman, having her feet braced, should have some convenience fixed to lay hold of with her hands and pull towards her chest, which will help to compress the abdomen and forward the expulsion. Holding the breath during a pain is also of service.

The naval cord should never be cut, or its circulation obstructed, till signs of life appear in the child, or till it breathes. If this does not take place soon, we should attempt to bring it to life, by spitting brandy on its chest and temples, and by blowing in its mouth and nostrils, at the same time compressing and dilating the chest as in breathing. Friction with the warm hand, and bathing the bowels with spirits, may also be tried. When the child is freed from the mother, the attendant should wash it clean in warm water, and particularly under the arms, in the neck, &c.; and if it is faint and feeble, it may be slightly bathed with spirits. It should then be made dry, and dressed.

[Care should be taken in washing the child's face not to allow any soap to get into its eyes. The neglect of this caution, is a fruitful source of purulent ophthalmia.]

During the whole progress of the operation, the accoucheur should conduct himself in a calm and collected manner; for the eye of the woman is upon him, watching every change of his countenance, and auguring favorably or unfavorably of the termination, according as he appears confident or frustrated.

Conclusion.—I have devoted particular attention to the subject of midwifery, because, as I believe, no branch of the healing art has been, and is now, so generally abused in practice as this; and in no branch are the effects of mal-practice so severely felt. Science, however useful in its proper place, can never supplant the powers of nature, in bringing the child into the world, and whenever improperly employed, it is certain to frustrate and derange the process, endangering the lives of both mother and child.

Much may be done preparatory for this event, to mitigate its severity and remove all occasion for those dreadful apprehensions which a state of pregnancy excites in most females, and which are frequently but too well grounded. I cannot bring myself to believe that the sufferings, the injuries, and death which so many females undergo, are necessary consequences of the reproduction of our species. Experience has told me the contrary.

Pregnant women in this country, and particularly those whose delicacy, or nervous irritability, subjects them to many of the trifling ailments consequent upon this state, are often managed in the following manner: if an unusual feeling is perceived, although it is a perfectly natural consequence,

medical advice must be had, and pills or potions follow. These agitate the system, increase the irritability, and render a recurrence of those complaints more certain. Bleeding then becomes necessary to quiet them, and this must be repeated frequently throughout the term. This, together with drugs and low diet, enfeebles the mother, robs the child, and paves the way either for abortion or premature spurious pains.

In my whole course of practice, which has not been limited, I have endeavored to let nature have her own course, and meddled as little as possible with her ways and laws.

TREATMENT AFTER DELIVERY.

After delivery the woman ought to be kept as quiet and easy as possible. Her food should be light and nourishing, and her drink cool. All heavy indigestible substances, such as buckwheat pancakes, bacon, and the like, should be avoided till well. To this first rule, however, there are many exceptions. I have known several women, whose spirits could not be supported in child-bed without solid food and generous liquors. Sometimes an excessive flooding happens after delivery. In this case, the patient should be laid with her head low, and treated in the manner before directed for excessive flow of the menses.

In some instances, an obstruction or total suppression of the urine takes place. This may be relieved by the administration of diuretics.

After Pains.—If there be violent pains after delivery, the patient should take a sufficient quantity of the mother's cordial to quell them. Or the patient may drink plentifully of warm diluting liquors, as tea, with a little saffron in it; and take small broths, with caraway seeds. If she be low spirited, or troubled with hysterical complaints, and the above treatment is not sufficient, anti-spasmodics may be added.

Costiveness.—Costiveness is apt to prevail after delivery, and should always be removed by a laxative elyter, or some gentle purgative, such as castor oil, rhubarb, or magnesia.

Inflammation of the Womb.—An inflammation of the womb is a dangerous and not unfrequent disease after delivery. It is known by pains in the lower part of the abdomen, which are greatly increased upon touching; by the tension or tightness of the parts; great weakness; change of countenance, a constant fever, with a weak and hard pulse; a slight delirium, or raving; sometimes incessant vomiting; a hiccup; a discharge of reddish, stinking, sharp water from the womb; an inclination to go frequently to stool; a heat, and sometimes total suppression of urine.

In this disorder, the bowels must be kept open by emollient elyters; clothes wet with the anodyne wash should be laid over the region of the womb, and re-wet as they become dry; and if there is delirium the head may be bathed with the same. If there is a suppression of urine, the tincture of cleavers may be given. Camomile tea, the fever powders, or such like, may also become proper to allay fever.

Suppression of the Lochia.—A suppression of the lochia, which continues for three or four days after delivery, and the milk fever, must be treated nearly in the same manner as an inflammation of the womb. In all these cases, the safest course is plentiful dilution, gentle evacuations; and fomentations of the parts affected. In the milk fever, the breasts may be embrocated with a little warm linseed oil, or the bitter-sweet ointment; or cabbage leaves may be applied to them. The child should be often put to the breast, or it should be drawn by some other person.

Nothing would tend more to prevent the milk-fever than putting the child early to the breast. The custom of not allowing the child to nurse for the first two or three days, is contrary to nature and common sense, and is very hurtful both to the mother and child. Every mother who has milk in her breasts, ought either to suckle her own child, or to have her breasts frequently drawn, at least for the first month. This would prevent many of the diseases which prove fatal to women in child-bed.

Inflammation of the Breast.—When an inflammation happens in the breast, attended with redness, hardness, and other symptoms of suppuration, the safest and most effectual application I have ever used, is the bitter-sweet ointment, mentioned among the recipes. This quickly softens and gives relief. If suppuration be far advanced, poultices of bread and milk, softened with oil of fresh butter, may be applied till the tumor breaks, or it is fit to open.

Chapped Nipples.—when the nipples are fretted or chapped, they may be anointed with a mixture of oil and bees-wax, or the bitter-sweet ointment, or a little powdered gum Arabic may be sprinkled on them. Should the complaint prove obstinate, a cooling purge may be given, which generally removes it.

Child-bed Fever.—The most fatal disorder consequent upon delivery, is the child-bed fever. It generally makes its attack on the second or third day after delivery. Sometimes, indeed, it comes on sooner, and at other times, though rarely, it does not appear before the fifth or sixth day.

It begins, like most other fevers, with a cold or shivering fit, which is succeeded by restlessness, pain in the head, great sickness at the stomach, and bilious vomiting. The pulse is generally quick, the tongue dry, and there is a remarkable depression of the spirits and loss of strength. A great pain is usually felt in the back, hips, and region of the womb; a sudden change in the quantity or quality of the lochia, also takes place; and the patient is frequently troubled with a constant inclination to go to stool. The urine, which is very high colored, is discharged in small quantity, and generally with pain. The abdomen sometimes swells to a considerable bulk, and becomes susceptible of pain from the slightest touch. When the fever has continued for a few days, the inflammation usually subsides, and the disease acquires a more putrid form. At this period, if not sooner, a bilious or putrid looseness, of an obstinate and dangerous nature, comes on, and accompanies the disease throughout its future progress.

There is no disease which requires to be treated with more skill and attention than this; consequently the best assistance ought to be rendered as soon as possible. If signs of inflammation or swelling appear about the womb, the anodyne wash should be applied freely over the part, together with draughts to the feet.

[Leeching or cupping above the pubis, should not be omitted in this disease.]

During the rigor, or cold fit, proper means should be used to abate its violence, and shorten its duration. For this purpose the patient may drink warm tea, together with a moderate quantity of the fever powders, and if low, may take now and then a cup of wine whey; warm applications to the extremities may be used with advantage.

Emollient clysters ought to be frequently administered through the course of the disease. These prove beneficial by promoting a discharge from the intestines, and also by acting kindly as a fomentation to the womb and adjacent parts. To evacuate the offending bile from the stomach, gentle laxatives may be used, as vomits are too irritating. The medicine which I have

always found to succeed best in this disease, is the mixture of salærated and rhubarb. This, if frequently repeated, will often put a stop to the vomiting, and at the same time lessen the violence of the fever. If it runs off by stool, or if the patient be restless, a few drops of laudanum may occasionally be added.

If the stools should prove so frequent as to weaken and exhaust the patient, a starch clyster, with thirty or forty drops of laudanum in it, may be administered as occasion shall require, and the drink may be spice-bush bark tea, and the like. Should these be insufficient, recourse must be had to tonics, as colombo root, &c.

Though in general the food ought to be light, yet if the patient is greatly weakened, she must be supported with nourishing diet, and generous drinks. When the stomach will not bear any kind of nourishment, the patient may be supported by clysters of beef-tea or chicken-broth.

To avoid this fever, every woman in child-bed ought to be kept perfectly easy; her food should be light and simple, and her bed-chamber cool and properly ventilated. There is nothing more hurtful to a woman in this situation, than being kept too warm. She ought not to have her body bound too tight, nor rise too soon after delivery; catching cold is also to be avoided; and a proper attention paid to cleanliness.

Milk Fever.—To prevent the milk fever, the breasts ought to be frequently drawn; and if they are filled previous to the onset of a fever, they should upon its first appearance be drawn, to prevent the milk from becoming acid, and its being absorbed in this state. Costiveness is likewise to be avoided. This will be best effected by the use of mild clysters and a laxative diet.

We shall conclude our observations on child-bed women, by recommending it to them, above all things, to beware of cold. Poor women, whose circumstances oblige them to quit their bed soon, should be particularly careful for a time. The better sort of women, however, run the greatest hazard from over-nursing and too much heat. They are generally kept in a sort of bagnio for eight or ten days, and then dressed out to see company. The danger of this conduct must be obvious to every one. Public places and churches, should not be the first place of resort after confinement.

DISEASES OF INFANTS.

MISERABLE, indeed, is the lot of man in the state of infancy! He comes into the world more helpless than any other animal, and stands much longer in need of the protection and care of his parents: but, alas! this care is not always bestowed upon him, and when it is, he often suffers as much from improper management as he would have done from neglect. Hence the officious care of parents, nurses, and midwives, become one of the most fruitful sources of the disorders of infants.

It must be obvious to every attentive person, that the first diseases of infants arise chiefly from their bowels. Nor is it the least to be wondered at, as they are in a manner poisoned with indigestible drugs, and improper diet as soon as they come into the world. Every thing that the stomach cannot digest may be considered as a poison; and unless it can be thrown up, or voided by stool it must occasion sickness, gripes, spasmodic affections of the bowels, or what the good women call inward fits, and at last, convulsions and death.

As these symptoms evidently arise from somewhat that irritates the intestines, doubtless the proper method of cure must be to remove it as soon as possible. The most safe and effectual method of doing this is by gentle vomits, as the tincture of blood root, a little sweetened. A half tea-spoonful

may be given at a dose, and repeated every ten minutes till it operates. This is perfectly safe, for any age. Gentle emetics will not only cleanse the stomach but will generally likewise open the body. Should this, however, not happen, and if the child be costive, some gentle purge will be necessary: for this purpose a little rhubarb, or manna, or such like, may be dissolved, or steeped in boiling water, and given in small quantities till it operates; or what will answer rather better, a few grains of magnesia may be mixed in any kind of food that is given to the child, and continued till it has the desired effect. If these medicines be properly administered, and the child's abdomen and limbs frequently rubbed with a warm hand before the fire, they will seldom fail to relieve those affections of the stomach and bowels from which children suffer so much.

Carminatives and aromatics, as caraway, peppermint, cloves, &c., and sometimes anti-spasmodics and anodynes, may be given with advantage in these gripes, spasms, and fits of infants. The children's cordial, mentioned among the recipes, will be found to answer almost every purpose in these affections.

THE MECONIUM.

The stomach and bowels of a new-born infant are filled with a blackish colored matter of the consistence of syrup, commonly called meconium. This is generally passed soon after birth by the mere effort of nature; in which case it is not necessary to give the infant any kind of medicine. But if it should be retained, or not sufficiently carried off, a little manna or magnesia will answer the purpose.

The most proper medicine for expelling the meconium is the mother's milk, which is always at first of a purgative quality. Were children allowed to nurse as soon as they show an inclination for the breast, they would seldom have occasion for medicines to discharge the meconium.

CANKER AFFECTING INFANTS.

Cankers are little whitish ulcers affecting the whole inside of the mouth, tongue, throat, and stomach, of infants. Sometimes they reach through the whole intestinal canal; in which case they are very dangerous, and often put an end to the infant's life.

If the cankers are of a pale color, clean, few in number, soft, superficial, and fall easily off, they are not dangerous, but if they are opaque, yellow, brown, black, thick, or running together, they are to be dreaded. This disorder is frequently caused by too hot a regimen, both of the mother and child. It is a rare thing to find a child who is not dosed with wine, punch, cinnamon water, or some other hot and inflaming liquor, almost as soon as it is born, if afflicted with the canker.

The proper medicines are, such as destroy canker, and gentle laxatives. For the last purpose, rhubarb or magnesia may be given in small doses till they operate; the bowels must be kept open during the whole disease. To destroy the canker, gargles may be made of decoctions of gold-thread, sage, blackberry roots, or witch-hazel bark, all of which should be sweetened with honey. With these the mouth and throat should be washed and gargled, at the same time allowing the child to swallow a little. There is a little bulbous milky root, growing in various parts of the state of New-York, which I have known, by the name of the rattle-snake root, and has the first year, three single stems of about six inches in length, with a broad three-cornered leaf

to each, and the second year runs up in a large reddish stalk from two to four feet high, bearing seed. This root is superior to any thing else I have ever known for destroying all kinds of canker in the mouth and bowels. As much as will lay upon a sixpenny piece may be steeped to a wine-glass full of water, sweetened, and a tea-spoonful given at a time, occasionally washing the mouth with it. Borax, mixed with honey, and rubbed in the child's mouth, is a popular remedy.

HICCUPS, ACIDITIES, AND GREEN STOOLS.

Some infants are much incommoded by hiccups, arising probably from acidity of the stomach. Most diseases of children are accompanied with evident signs of acidity, as green stools, gripes, &c.

These appearances have induced many to believe that the diseases of children were owing to an acid abounding in the stomach and bowels; but whoever considers the matter attentively will find that these symptoms of acidity are oftener the effect than the cause of their diseases.

When green stools, gripes, purgings, sour smells, &c., show that the bowels abound with an acid, the child should have a little magnesia, with broth, given it; or the chalk julep, and the like. Compounds embracing aromatic carminatives, laxatives, and alkali, I consider as indicative in this complaint. Caraway, steeped with rhubarb, and a little soot tea added, has proved very effectual. The children's cordial, perhaps combines all that is necessary in these cases. When the gripes and looseness are troublesome and obstinate, a little laudanum with gum arabic, will help to check it. All alkalies and absorbents given in these complaints, may be slightly combined with laxatives. Magnesia, uniting both these qualities, is well calculated for all cases of acidity. *Urine* is a very common remedy among many people for this species of complaints in children, and seldom fails to give relief.

When an infant is troubled with gripes, a little brandy may also be rubbed on its belly with a warm hand before the fire. This will usually relieve them if accompanied with aromatics as directed above.

GALLING, OR CHAFING.

These are very troublesome to children. They happen chiefly about the groin or wrinkles of the neck, under the arms, behind the ears, and in other parts that are moistened by the sweat or urine.

As these complaints are, in a great measure, owing to want of cleanliness, the most effectual means of preventing them are, to wash the parts frequently with cold water, to change the linen often, and in a word to keep the child in all respects thoroughly clean. When this is not sufficient, the chafed parts may be sprinkled with absorbent or drying powders, as chalk, wheat or rye flour, scorched, and the like. If the parts become very sore, a weak solution of white vitrol, in spring water, may be used, or the witch-hazle decoction. Fuller's earth is equal to any other application.

STOPPAGE OF THE NOSE.

The nostrils of infants are often plugged up with a gross mucus, which prevents their breathing freely, and likewise renders it difficult for them to suck or swallow.

The nose may be rubbed at bed time with a little sweet oil, or fresh butter.

This resolves the filth, and renders the breathing more free, and little else is necessary to be given.

VOMITING AND LOOSENESS.

From the delicate state of children, and the great sensibility of their organs, a vomiting or looseness may be induced by any thing that irritates the nerves of the stomach or intestines. Hence these disorders are much more common in childhood than in the advanced periods of life. They are seldom, however, dangerous, and ought never to be considered as diseases unless they are violent, or continue so long as to exhaust the strength of the patient.

When vomiting proceeds from an over quantity of food, it may be promoted by slight emetics, as tincture of bloodroot than which nothing operates easier. If it proceeds from an increased sensibility of the stomach, alkalies, and tonics may be administered, tinctured with aromatics.

A looseness may generally be considered salutary, when the stools are sour, slimy, green or curdled. It is not the discharge, but the production of such stools that ought to be remedied. Even when the purging is thin and watery, it ought not to be checked too suddenly. To remove a severe looseness, an emetic will generally be proper, to lay the foundation; and afterwards, absorbents, alkalies, laxatives, aromatics, and anodynes will be proper to correct the acrimony. From what has been said before, the practitioner will be able to gather the proper treatment.

CUTANEOUS ERUPTIONS.

Children, while on the breast, are seldom free from eruptions of one kind or other. These, however, are not often dangerous, and are never to be dried up, or healed externally, but with the greatest caution. They tend to free the bodies of infants from hurtful humors, which, if retained might produce fatal disorders.

The eruptions of children are chiefly owing to improper food and neglect of cleanliness. If a child be stuffed at all hours with food that his stomach is not able to digest, such food, not being properly assimilated, instead of nourishing the body, fills it with gross humors. These must either break out in form of eruptions upon the skin, or remain in the body and occasion fevers and other internal disorders. The children of the lowest class of people, and of all who despise cleanliness, are almost constantly found to swarm with vermin, and are generally covered with scab, itch, and other eruptions.

When eruptions proceed from any of the above causes, all that is necessary to be done is to observe thorough cleanliness, internally and externally, and give such medicines as purify, cleanse, and drive out the impure humors. Saffron, in decoction, is generally sufficient for this purpose in this species of cutaneous eruptions.

In more virulent eruptions and impurities of the system, as scabbed and scald-head, or hereditary eruptive diseases, more powerful alteratives are required, as decoctions of sarsaparilla, burdock, yellow dock, &c., or the anti-mercurial syrup, which will not disappoint expectation. The tar ointment is very suitable for the scald-head.

Chilblains commonly attack children in cold weather. They are occasioned generally by the feet or hands being kept long wet or cold, and afterwards suddenly heated. To remedy this, when the parts look red and swell, they should be rubbed with mustard and brandy, or other heating stimulating things; or an ointment of green tobacco in lard, may be applied.

THE CROUP, OR RATTLES.

Children are often seized very suddenly with this disorder, which, if not quickly relieved, proves suddenly mortal. It seems to be a species of asthma, attended with very acute and violent catarrhal symptoms.

This disease generally prevails in cold and wet seasons. It is most common in low marshy countries. Children of a gross and lax habit, are most liable to it. It generally attacks children in the night, after having been much exposed to damp cold easterly winds through the day. Damp houses, wet feet, thin shoes, wet clothes, or any thing that obstructs the perspiration may occasion the croup.

It is attended with a frequent pulse, quick and laborious breathing, which is performed with a peculiar kind of croaking, or rattling noise, that may be heard at some distance. The voice is sharp and shrill, and the face generally much flushed, though sometimes it is of a livid color.

When a child is seized with the above symptoms, his feet should immediately be put into warm water, and afterwards draughts of garlic or onions applied to their soles. To break up the phlegm, give a blood root emetic, which may be combined with lobelia, repeating it as often as necessary. Nothing can operate more beautifully or effectually than this in breaking up the croup. Another article, with which I have often saved life in the last extremity, when the breath was almost totally stopped, is rattlesnake's oil: four or five drops given on sugar, is sufficient for a child of two years old at a dose. This cuts up the phlegm, and frees the passage almost instantaneously. Vinegar and horse-radish may be given to great advantage. Wild turnip, skunk's cabbage, demulcents, diaphoretics, and expectorants, are proper.

The burgundy pitch plaster, worn continually between the shoulders, has a very happy effect in relieving this dreadful disorder. and preventing its return.

TEETHING.

It has been supposed that above a tenth part of infants die in teething, by symptoms proceeding from the irritation of the tender nervous parts of the jaws, occasioning inflammations, fevers, convulsions, gangrenes, &c. These symptoms are in a great measure owing to the great delicacy and exquisite sensibility of the nervous system at this time of life, which is too often increased by an effeminate education. Hence it comes to pass, that children who are delicately brought up, always suffer most in teething.

About the sixth or seventh month, the teeth generally begin to make their appearance. The seventh year there comes a new set; and about the twentieth, the two inner grinders, called the teeth of wisdom.

Children about the time of cutting their teeth, slaver much, and have generally a looseness. When the teething is difficult, especially when the dog-teeth begin to make their way through the gums, the child has startings in his sleep, tumors of the gums, watchings, gripes, green stools, fever, difficult breathing, and convulsions. Children have been known to lose the use of an arm, or a leg, or of both, till the tooth was through, and then recover it immediately, without any medical assistance.

Difficult teething requires nearly the same treatment as an inflammatory disease. If the body be bound, it must be opened, either by gentle purgatives or by clysters. Magnesia is very appropriate; if too much relaxed, the chalk julep may be given. Diluting teas, as of sage, balm, or elder flowers, should be used; to which may be added a fourth part of milk.

Spirits of hartshorn, from five to fifteen drops every four hours, in a spoonful of water, will usually relieve.

Cutting the gums to favor the passage of the teeth, is of great benefit, and may be employed in all cases where the gums offer much resistance to the teeth. This operation may be performed with a lancet, or any moderately sharp instrument.

In order to render teething less difficult, parents ought to take care that their children's food be light and wholesome, and that their nerves be braced by sufficient exercise without doors, the cold bath, &c.

Infants, during dentition, are subject to sudden attacks of spasm about the wind-pipe, producing a temporary feeling of suffocation, with a crowing sound; but there is no hoarse cough. It is apt to take place suddenly at night, when crying. This may be relieved by anti-spasmodics and laxatives.

THE RICKETS.

This disease generally attacks children between the age of nine months and two years. It affects the bones. The head is sometimes enlarged to an enormous size; the wrists and ankles seem protuberant, and as the bones increase in size the child grows weaker.

One cause of the rickets is diseased parents. Mothers of a weak relaxed habit, who neglect exercise and live upon weak watery diet, can neither be expected to bring forth strong healthy children, or be able to nurse them when they are brought forth. Accordingly, we find that the children of such women generally die of the rickets, scrofula, hip-gout, or such like diseases. Children begotten by men in the decline of life, who are subject to the gout, gravel, or other chronic diseases, or who have been afflicted with the venereal disease in their youth, are likewise very liable to the rickets.

This disease, however, is chiefly owing to the sloth or negligence of the nurse. Allowing an infant to sit or lie too much, or not keeping it thoroughly clean in its clothes, has the most pernicious effects. Those children who are much dandled and danced, kept clean, and frequently in motion, carried sometimes on one, and sometimes on the other arm, will be for ever strangers to this disorder. A healthy child should always be kept in motion, unless when asleep.

At the beginning of this disease, the child's flesh grows soft and flabby; its strength is diminished; it loses its wonted cheerfulness, looks more grave and composed than is natural for its age, and does not choose to be moved. The head and abdomen become too large in proportion to the other parts; the face appears full, and the complexion florid. Afterwards the bones begin to be affected, especially in the more soft and spongy parts. Hence the wrists and ankles become thicker than usual; the spine or back bone puts on an unnatural shape; the chest is likewise deformed, and the bones of the arms and legs grow crooked. All these symptoms vary according to the violence of the disease. The pulse is generally quick, the appetite and digestion for the most part bad; the teeth come slowly and with difficulty, and they often rot and fall out afterwards. Ricketty children generally have great acuteness of mind, and an understanding above their years.

For the cure, give tonics, change of air, plenty of exercise, which is absolutely necessary, and let the child be plunged into cold water every morning; but never give it a second, much less a third dip. The whole object of the regimen and treatment should be to strengthen and brace the solids, and promote the digestion and due preparation of the fluids. The cure is more in the hands of the nurse than the physician.

If the humors are vitiated, cleansing medicines are necessary. The diet should be dry and nourishing, consisting principally of flesh. His drinks may be stimulating, as good ale or porter. Strengthening bitters must be persevered in for a long time, as colombo, gentian, iron, myrrh, horse-radish, buck-horn brake, and such like. A few drops of elixir vitriol will have a good effect, given occasionally.

The child should be rubbed frequently with a warm hand, and kept as cheerful as possible.

CONVULSIONS.

If symptomatic, the removal of the primary disorder which occasions them is the first object. Those that are most common generally yield to the sal æratus and rhubarb mixture, strongly tinctured with peppermint, taken three or four times a day as long as there is occasion. Or, anti-spasmodics, as musk, castor, valerian, the fever powders, &c., may be administered.

When a child is seized with convulsions without having any complaint in the bowels, or symptoms of teething, or any rash or other discharge which has been suddenly dried up, we have reason to conclude that it is a primary disease, and proceeds immediately from the brain. Cases of this kind happen but seldom, which is very fortunate, as little can be done to relieve the unhappy patient. When a disease proceeds from an original fault in the formation of the brain itself, we cannot expect that it should yield to medicine. But as this is not always the case, even of convulsions which proceed immediately from the brain, we should attempt to remove them. The chief intention to be pursued for this purpose, is to make some derivation from the head, by blistering, purging, and the like; and by bathing the head with cooling anodyne washes. At the same time the body should be rubbed over the whole surface with a warm hand, to produce a proper degree of circulation.

DROPSY IN THE HEAD.

Though water in the head, or dropsy in the brain, may affect adults as well as children, yet, as the latter are more peculiarly liable to it, we thought it would be most proper to place it among the diseases of infants.

A dropsy of the brain may proceed from injuries of the brain itself; it may likewise proceed from an original laxity or weakness of the brain; from scirrhus tumors, or excrescences within the skull; a thin watery state of the blood; a diminished secretion of urine; a sudden check of perspiration; and lastly, from tedious and lingering diseases, which waste and consume the patient.

This disease has at first the appearance of a slow fever; the patient complains of a pain in the crown of his head, or over his eyes; he shuns the light, is sick, and sometimes vomits; his pulse is irregular and generally low; though he seems heavy and dull, yet he does not sleep; he is sometimes delirious, and frequently sees objects double; towards the end of this commonly fatal disease, the pulse becomes more frequent, the pupils are generally dilated, the cheeks flushed, the patient becomes sleepy, and convulsions ensue.

[The most common cause of this disease is inflammation; it may be slight, and yet be sufficient to cause, on its subsidence, this serous effusion. The brain has a covering which resembles in structure the peritoneal coat of the

abdomen, capable of secreting water very suddenly and freely. This covering of the brain is called *Arachnoid Membrane*; it is not only a covering for the brain, but it also covers the medulla spinalis. I have seen the head of a child as large as a peck measure; the bones were stretched far apart; the water was plainly seen: the eyes were so much turned in that the child could not see; the water pressed so hard that it followed the spinal cord its whole length and bulged out between every vertebra in the loins; it looked like bladders of water hanging in a row. I saw one of them opened, and about a pint of water taken away; it relieved the head very much, so much so that the eyes were nearly straight; but in a little while it accumulated again, and the child died. In such cases the child has no command over the head or lower extremities. I have seen many cases where it seemed to come on idiopathically; the child would live for one or even two years, the disease constantly and slowly increasing, but enjoying pretty good health. Some other disease often sets in and carries them off suddenly. It becomes necessary to watch the diseases of the head in children, and apply the remedies early.]

No medicine has hitherto been found sufficient to carry off a dropsy of the brain, after it is seated. One reason why this disease is seldom or never cured is, that it is seldom known till it is too far advanced to admit of a remedy. It is laudable, however, to make some attempts, as time or chance may bring things to light, of which at present we have no idea. The appropriate remedies are the same as in other species of dropsy.

A singular circumstance attending many infants for some time after birth, is, a constant hankering for something, sucking its fists or any thing it gets hold of, attended with continual uneasiness, crying, wasting of the flesh, and other bad symptoms. None of the common remedies will give relief in these cases. When I find a child in this condition, I conclude it wants or longs for something, and that this longing is caused, or governed, by a longing of the mother previous to the birth, which was unsatisfied. I therefore request the mother to recollect what article of food, fruit, or drink she was fond of, or particularly craved during pregnancy, in which she was not gratified; and if she can bring any such thing to mind, to give it to the child. She can generally do so, on reflection, and upon giving it to the child till he is satisfied, he becomes at once quiet and contented, and resumes his growth and thriving appearance. It is astonishing to see with what voracity and eagerness the little creature will devour the article he craved, when he has once obtained it. I have seen a child four weeks old eat a large apple scraped fine, and another suck down a teacup full of short-cake, in milk, while another eats a gill of cherries; and in no case have I known injury to result from gratifying its appetite to the full; while on the contrary, it has never failed within my knowledge of giving entire relief.

I presume this mode of accounting for, and curing this affection in children, will be considered as silly or ridiculous, by many practitioners; I thought so once myself; but actual demonstration in numerous instances has satisfied me of the truth of what is above stated. Of those who doubt it I only ask, that they make the experiment the first fitting opportunity that presents, and by so doing they will have the satisfaction of saving the child's life.

To look over the long catalogue of infantile diseases in some medical books, one would be inclined to think that the real design of the authors,

though concealed under the show of precision, was to spread alarm through every family. I have had a very different object in view, viz., to quiet the fears of parents, to direct their attention to the proper treatment of children, and thus to render the use of any medicines almost unnecessary. I have shown the folly of having recourse to physic to bring away the black, viscid, syrup-like substance contained in the intestines of a new-born infant, when the purgative quality of its mother's milk is so admirably suited to that very purpose. In Germany, and the north of Europe, the infant is allowed nothing but the breast, even if no milk appears for two or three days, and no bad consequences ever result from it. The new milk is thin and watery, but acquires every day greater consistence, and thus affords a more solid aliment to the child as he becomes capable of digesting it. If the mother does not vitiate, by her own improper diet, the pure fountains of nourishment and health which nature has kindly given to her, the child will neither be troubled with costiveness or gripes. He will escape those complaints of the stomach which are occasioned by swallowing crude, inflammatory trash, or still more pernicious drugs. The daily use of the cold bath, and frequent exercise in the open air, will not only preserve him from colds and defluxions, but from all the disorders which are the consequences of relaxation and nervous irritability. A child brought up in the way I have recommended, will have little to fear even from external contagion. The firm texture of his skin, like a shield, will almost resist its approach, and the purity of his habit will correct its malignity.

PART III.

MATERIA MEDICA.

Under this Department are included, 1st, CLASSIFICATION OF MEDICINES; 2d, MEDICAL PLANTS, BALSAMS, GUMS, &c.; 3d, COLLECTION AND PRESERVATION OF MEDICAL PLANTS.

INTRODUCTORY REMARKS.

UNDER this head are comprised simple and prepared medicines, such as are used in the cure of diseases; to which is subjoined a short view of their natural, medical, and pharmaceutical history, with the virtues and doses of each. It would be an unnecessary task to enumerate and describe all the articles that have acquired the name of medicine, but I trust that a sufficient collection will be found in this work, not only to subserve all the useful purposes of the physician, but also to enable him to understand the nature and proportion of most of the remedial articles now in use, even though he may dissent from the employment of them.

In explaining the operations of medicines, and classing them according to these operations, it is to be regarded as a first principle that they act only on the living body. The presence of life is accompanied with peculiar properties, and with modes of action inexplicable on mere mechanical or chemical principles. Substances acting on the living system no doubt produce effects referable to these; but the changes they produce are also always so far modified as to be peculiar in themselves, and regulated by laws exclusively belonging to organized matter.

Medicines, in general, operate by stimulating the living fibre. This proposition cannot, however, be received in an unlimited sense. From the exhibition of different medicines, very different effects are produced, which cannot be satisfactorily explained from the cause assigned: the difference in the *degree* of stimulant operation. They differ in *kind* so far that, even in the greater number of cases, one remedy cannot by any management of dose or administration be made to produce the effects which result from the action of another.

It is, therefore, necessary to admit some modification of the general principles above stated, and the following are perhaps sufficient to afford grounds for explaining the operations of remedies, and for establishing a classification of them sufficiently just and comprehensive.

1. Stimulants are not to be regarded as differing merely in the degree of stimulant operation which they exert. An important distinction exists between

them, as they are more or less diffusible and permanent in their action. A stimulus is termed diffusible, which, whenever it is applied, or at least in a very short time after, extends its action over the whole system, and quickly produces its full exciting effect. A diffusible stimulus is generally also transient in its action; in other words, the effect though soon produced, quickly ceases. There are others, on the contrary, which, though equally powerful stimulants, are slow and permanent. These varieties, which are sufficiently established, serve to explain the differences in the powers of a number of the most important medicines, and they lay the foundation for the distinction of two great classes, narcotics and tonics, with their subordinate division of anti-spasmodics and astringents, both consisting of powerful stimulants; the one diffusible and transient, the other slow and permanent in their operation.

II. There is a difference between stimulants, in their actions being directed to particular parts. Some, when received into the stomach, quickly act upon the general system; others have their action confined to the stomach itself, or, at least, any farther stimulant effect they may occasion is slow and inconsiderable; while a third class consists of those which operate on one part, often without producing any sensible effect on the stomach or general system. Some thus act on the intestinal canal; others on the kidneys, bladder, vessels of the skin, and other parts; the action they excite in these, being the consequence, not of any stimulant operation equally extended over every part, but of one more particularly determined. This difference in the action of stimuli is the principal foundation of the distinctions of medicines into particular classes. Cathartics, for instance, are those medicines which, as stimuli, act peculiarly on the intestinal canal: diuretics, those which act on the secreting vessels of the kidneys: emmenagogues, those which act on the uterine system: diaphoretics, those which exert a stimulant action on the vessels of the skin. With these operations, medicines, at the same time, act more or less as general stimulants, by which each individual belonging to any class is thus rendered capable of producing peculiar effects; and many of them, by a peculiarity of constitution in the patient, or from the mode in which they are administered, frequently act on more than one part of the system, by which their effects are still farther diversified. Medicines, when thus determined to particular parts, are sometimes conveyed to these parts in the course of the circulation; more generally their action is extended from the stomach, or part to which they are applied, by the medium of the nervous system.

III. Medicines, besides acting as stimuli, sometimes occasion mechanical or chemical changes in the state of the fluids or solids, by which their action is more or less diversified. These operations of medicines were formerly supposed to be more extensive than they really are; and many absurd explanations were deduced from the supposed changes which the solids and fluids underwent in disease. Though these notions are now exploded, it must still be admitted that changes of this kind do take place in the living system. Chemical changes, in particular, there is reason to believe, very frequently modify the actions of remedies; and some very obvious operations of this kind, as well as others of a mechanical nature, serve as distinctions for establishing several particular classes.

These observations point out the principles on which the arrangement of the articles of the *Materia Medica*, from their mechanical operations, may be established.

These stimulants which exert a general action on the system, may first be considered. Of these, there are two well marked subdivisions, the diffusible and the permanent; the former corresponding to the usual classes of narcotics and anti-spasmodics; the latter, including likewise two classes, tonics and astringents. In these, there is a gradual transition passing into the one from

the other, from the most diffusible and least durable stimulus, to the one most slow and permanent in its action.

The next general division is that comprising local stimulants; such are the classes of emetics, cathartics, emmenagogues, diuretics, diaphoretics, expectorants, sialagogues, errhines, and epispatics. These all occasion evacuation of one kind or another, and their effects are in general to be ascribed, not to any operation exerted on the whole system, but to changes of action induced in particular parts.

After these, those few medicines may be considered whose action is merely mechanical or chemical. To the former belong diluents, demulcents, and emollients. Vermifuges may perhaps be referred with propriety to the same division. To the latter, or those which act chemically, belong antacids or absorbents, lithontriptics, caustics, and perhaps refrigerants.

Under these classes may be comprehended all those substances capable of producing salutary changes in the human system. Several classes are, indeed, excluded which have sometimes been admitted; but these have been rejected, either as not being sufficiently precise or comprehensive, or as being established only on erroneous theory.

The subdivisions of these classes may sometimes be established on the natural affinities existing among the substances arranged under each; on their chemical composition; their resemblance in sensible qualities; or, lastly, on distinctions in their medical virtues more minute than those which form the characters of the class. In different classes one of these methods will frequently be found preferable to any of the others.

CLASSIFICATION OF MEDICINES.

A. GENERAL STIMULANTS.

- | | |
|----------------|--------------------|
| a. Diffusible. | { Narcotics. |
| | { Anti-spasmodics. |
| b. Permanent. | { Tonics. |
| | { Astringents. |
| | Expectorants. |
| | Diaphoretics. |
| | Diuretics. |
| | Emmenagogues. |
| | Cathartics. |

B. LOCAL STIMULANTS.

Emetics.
Sialagogues.
Errhines.
Epispatics.
Refrigerants.

C. CHEMICAL REMEDIES.

Antacids.

D. MECHANICAL REMEDIES.

Escharotics.
Vermifuges.
Demulcents.
Diluents.
Emollients.

CLASS I.—NARCOTICS.

This first division of the preceding classification, is that comprehending those stimulants, the action of which is general over the system. The first class of this division comprises those which are highly diffusible, and at the

same time transient in their operation. This corresponds with the common class of narcotics or sedatives, usually defined. Such substances as diminish the action and powers of the system, without occasioning any sensible evacuation. The definition is imperfect, as it does not include that stimulant operation which it is acknowledged they equally produce.

When given in a moderate dose, narcotics excite the functions both of body and mind: the force and frequency of the pulse are increased, muscular action is more vigorous, and hilarity or intoxication are induced. These symptoms, after continuing for some time, are succeeded by those of diminished action: the pulse slower, is full and soft, the body is less sensible to impressions, and less capable of voluntary exertion, and the mind is inactive. This state terminates in sleep. When it ceases, there remains a degree of general debility, marked by sickness, tremor, and oppression. By a large dose, debility, without previous excitement, is occasioned, and the consequences of an immoderate quantity are delirium, paralysis, coma, and convulsions, sometimes terminating in death. These are the general effects, considerably diversified, however, as arising from different narcotics, and varied by other circumstances. Habitual use considerably diminishes that power.

These medicines act primarily on the stomach, whence their action is conveyed by nervous communication to the general system. Externally applied, they exert their usual action, though with less force. Directly applied to the muscles of animals, they first stimulate them to contraction, but ultimately exhaust their irritability.

As the medicines belonging to this class diminish the actions of the system, when given in even small doses, their primary operation was generally considered as of a depressing kind: and the stimulant effects which occasionally appeared to be produced by their exhibition, were ascribed to what was termed the reaction of the system, or the exertion of that salutary powersupposed to belong to the living body, by which every noxious application is resisted and thrown off. They were, therefore, considered *directly* sedative, and *indirectly* stimulant.

Precisely the reverse of this doctrine was likewise advanced. As their exciting effects were those which appeared first, and were succeeded by those of debility, and as the first were produced from a small dose, while the others were occasioned when the dose was comparatively large, these substances were regarded as direct stimulants, capable of exciting the actions of the system; and the symptoms of debility which they so frequently produced, were considered as arising from that exhaustion of power which, according to a general law of the system, always follows increased action suddenly raised and not kept up. They were regarded, therefore, as *directly* stimulant, and *indirectly* sedative, and the peculiarities of their action were ascribed to their rapid and transient stimulant operation.

If, in investigating this subject, we merely contrast these two theories, little doubt can remain of the superiority of the latter. The suppositions of there being a power in the living system, fitted to resist any noxious agent, and of such power acting before the deleterious effects have taken place, and thus retarding or preventing their production, are improbable, and unsupported by any satisfactory proof. Since the stimulant operation of narcotics always precedes the symptoms of languor and debility which they produce, it is the direct conclusion, that these latter are the consequences of the former. The analogy between narcotics and other substances, admitted to be stimulants, but which are less rapid in their operation, is also in many respects so direct, as to prove similarity of action. And their utility in several diseases, in which they are employed as stimulants, is scarcely consistent with the opinion that they possess a real depressing power. Some doubt, however, is still attached to the theory that they are direct stimulants, from the fact, undoubtedly true, that the sedative effects of narcotics are frequently disproportioned

to their previous stimulant operation, allowing even in such cases, for its rapidity and little permanence ; and the proposition, though apparently somewhat paradoxical, is perhaps just, that these substances are at once capable of stimulating the living fibre, and independent of that stimulant operation, exhaust to a greater or less extent, by direct operation, the living power. The effects of certain chemical agents on the living system, as lately ascertained, appear to support some conclusion of this kind.

Narcotics being capable of producing either stimulant or sedative effects, may be practically employed with very different intentions. Either operation is obtained chiefly by certain modes of administration. If given in small doses, frequently repeated, the actions of the system are excited and kept up. But if given in large doses, at distant intervals, the state of diminished action and lessened sensibility is obtained. As stimulants, they are employed in various diseases of debility: in intermittent fever, and continued fevers of the typhoid type ; in gout, hysteria, &c. As sedatives, they are used to allay pain and irritation, to procure sleep, and diminish secretions ; hence their application in spasmodic and painful diseases, in hæmorrhages and increased discharges. In an inflammatory state of the system, the use of some of them is not altogether without danger from their stimulating effects.

CLASS II.—ANTI-SPASMODICS.

This class might perhaps be considered as a subordinate division of narcotics. They have similar virtues, being used principally to allay pain and inordinate action, and they differ only in producing that state of general insensibility and diminished action, which arises from the action of narcotics. This might be supposed to be owing merely to a difference in power ; yet there seems also to be something more than this, since they produce no such effect in any dose, and since, although they are so much inferior to narcotics in this respect, they are equally powerful in repressing inordinate and irregular muscular action. This difference may be explained on the supposition that they are equally powerful stimulants, but are less diffusible and more durable in their action or that they are powerful diffusible stimulants, possessing little direct power of diminishing the excitable principle. Considered in this point of view, they will form an intermediate class between narcotics and tonics ; and experience shows that they partake of the properties of both ; several narcotics and tonics being frequently used as anti-spasmodics.

From the name given to this class, their effects may be easily understood. Spasm is an irregular contraction of a muscle ; sometimes the contraction is permanent, at other times it alternates with relaxation, but is still irregular. Such medicines as obviate and remove such affections, are termed anti-spasmodics.

CLASS III.—TONICS.

By tonics, are understood those substances whose primary operation is to give strength to the system. Their operation is not mechanical, as was once conceived ; they act not on the simple solids, increasing their tone, but on the living fibre, and merely powerful stimulants, permanent in their operation. By producing a gradual excitement, they give vigor to the actions of the system, and as that excitement is gradually produced, it is in like manner gradually diminished, and the habitual stimuli continuing to operate, diminished action does not succeed. Where tonics, however, are given in ex-

cess, are used unnecessarily, or for too long a time, they weaken the powers of life.

Tonics act primarily on the stomach, the action they excite in that organ being communicated generally by the medium of the nerves to the rest of the system.

The immediate effects of a tonic, given in a full dose, are to increase the force of the circulation, to augment the animal heat, promote the various secretions, or moderate them when morbidly increased, quicken digestion, and render muscular action more easy and vigorous. By some of them, however, these effects are very slowly induced.

The affections of the system in which the tonics are employed, must be obviously those of debility; hence their use in the greater part of the diseases to which mankind is subject.

This class may be subdivided into those individuals derived from the mineral and those from the vegetable kingdoms.

TONICS FROM THE MINERAL KINGDOM.

These are in general more local in their nature than the vegetable tonics. They do not operate so speedily, and seldom occasion considerable excitement.

TONICS FROM THE VEGETABLE KINGDOM.

The tonic power in vegetables is intimately connected with certain sensible qualities: with their bitterness, astringency, and aromatic quality, all of them perhaps possessing these qualities, though, in each, one may be more predominant than the other. The purest bitters, astringents, and aromatics, possess also more or less of a tonic power. Of these divisions, the pure astringents form a distinct class; the remaining tonics may be arranged according as the bitterness or aromatic quality is predominant in them.

The stimulant operation of the purer bitters is little diffusible, and very slow in its operation; their effects are principally on the stomach and digestive organs, to which they communicate vigor, though they also act in some degree on the general system, and obviate debility, as is evident in particular from their efficacy in intermittent fever, in dropsy, in gout, and from their effects when used for too long a time.

Aromatics are more rapid and diffusible in their action; they quicken the circulation, and augment the heat of the body. Their action has little permanence; hence they are employed in medicine either as mere temporary stimulants, or to promote the action of bitters or astringents.

From these different modes of action of bitters and aromatics, it is evident, that a more powerful tonic will be obtained from the combination of these qualities than when they exist separately. The most powerful tonics are accordingly natural combinations of this kind.

AROMATICS.

The substances belonging to this subdivision of the vegetable tonics, stimulate the stomach and general system, augment the force of the circulation, and increase the heat of the body.

CLASS IV.—ASTRINGENTS.

Astringents have been usually considered as substances capable of obviating or removing increased evacuations, by their power of contracting or condensing the simple solids, of which the vessels are formed.

Increased evacuations cannot be ascribed to mere mechanical laxity of the solids; and their removal cannot be referred to simple condensation of these

solids. Neither can it be admitted that active substances may be applied to the system without occasioning changes in the state of the vital properties. Many substances, considered astringent occasion very considerable alterations in several of the functions; they produce effects, too, which cannot be solely referred to a condensing power, and, therefore, in all the changes they produce, part at least of their operation must be referred to their acting on the powers peculiar to life.

For reasons of this kind, some have denied the existence of such remedies, and have considered those which usually receive the appellation of astringents, merely as stimulants, moderate and permanent in their action; in other words, as tonics of inferior power. But though there be a great analogy between these two classes in their effects, and probably in their mode of operation, there is also a very obvious difference; the most powerful astringents, that is, substances which immediately restrain excessive evacuations, being much inferior in real tonic power to other substances having little astringency; while there are powerful tonics or medicines capable of removing debility, which do not with any uniformity produce the immediate effects of astringents.

Perhaps astringents may be regarded as moderate permanent stimulants, having their stimulant operation modified by their power of condensing the animal fibre by a mechanical, or rather chemical action. That they exert a stimulant operation, is proved by their power of curing intermittent fever and other diseases of debility; and that they possess a constringing quality is evident, not only from the sensation they excite on the tongue, but is proved by the change they produce in animal matter. If these combined actions be exerted on the fibres of the stomach, the change produced, it is possible, may be propagated by nervous communications to other parts of the system.

Some narcotics, as opium, have, in certain cases, effects apparently astringent. These are, where increased discharges arise from irritation, in which, by diminishing irritability, they lessen the discharge; but such an operation is altogether different from that of real astringents.

As remedies against disease, astringents may sometimes, from their moderate stimulant operation, be substituted for tonics. They have thus proved successful in the treatment of intermittent fever; and in all cases of debility, they seem to be serviceable independent of their power of checking debilitating evacuations.

It is, however, for restraining morbid evacuations that astringents are usually employed. In the various kinds of hæmorrhages, &c., they are frequently employed with advantage, though their power is also often inadequate to stop the discharge. In diarrhœa they diminish the effusion of fluids, and at the same time give tone to the intestinal canal, and thus remove the disease. In the latter stages of dysentery they prove useful by a similar operation. In profuse sweating, and diabetes, they are frequently sufficiently powerful to lessen the increased discharge; and in those kinds of inflammation termed passive, and even in some cases of active inflammation they are applied with advantage as topical remedies.

It is an obvious caution, that astringents are not to be used to check critical evacuations, unless these proceed to excess.

Astringents may be subdivided into those belonging to the vegetable, and those belonging to the mineral kingdom, which differ very considerably from each other in their operation.

VEGETABLE ASTRINGENTS.

Astringency in vegetables seems to be connected with a certain chemical principle, or at least with some peculiarity of composition, since vegetable

astringents uniformly possess certain chemical properties. The astringency is extracted both by water and alcohol, and these infusions strike a black colour with any of the salts of iron.

Chemical investigations have accordingly discovered two distinct principles in the vegetable astringents, one or both of which may probably give rise to the astringent property. One of these, the gallic acid, is distinguished by its property of striking a deep black colour with the salts of iron; the other, the tanning principle, or tannin, is characterised by its strong attraction to animal gelatin, with which it combines, and forms a soft ductile mass, insoluble in water. These may be separated by a solution of animal jelly, which unites with the tannin, and leaves the gallic acid pure.

MINERAL ASTRINGENTS.

Of these, the principal are the mineral acids, especially the sulphuric, and the combinations it forms with some of the metals and earths.

LOCAL STIMULANTS.

CLASS V.—EMETICS.

Emetics are substances capable of exciting vomiting, independent of any effect arising from the mere quantity of matter introduced into the stomach, or of any nauseous taste or flavor.

The effects of an emetic are, an uneasy sensation in the stomach, with nausea and vomiting. While only the nausea is present, the pulse is feeble, quick, and irregular, and the countenance pale: during vomiting the face is flushed, the pulse is quicker, and it remains so during the intervals of vomiting. When the operation of vomiting has ceased, the nausea goes off gradually; the patient remains languid, and often inclined to sleep: the pulse is weak, but becomes gradually slow and full, and the skin is commonly moist.

The general nature of vomiting is sufficiently evident. The peristaltic motion of the stomach is inverted, the diaphragm and abdominal muscles are called into action by association, and the pylorus being contracted, the contents of the stomach are forcibly discharged. The peristaltic motion of the upper part of the intestinal canal is likewise frequently inverted.

How this peristaltic motion is thus inverted, it is difficult to explain. The substances which have this effect no doubt possess a stimulant power, but the effect is by no means produced in proportion to the degree of stimulant operation exerted on the stomach, and it has not been explained how such an operation can invert the usual motion.

Dr. Darwin considers vomiting as the effect, not of increased action from the operation of a stimulus, but of diminished action, arising from the disagreeable sensation of nausea. ¶ This being induced, the usual motion is gradually lessened, stopped, and is at length inverted, which gives rise to the phenomena of vomiting.

The susceptibility of vomiting is very different in different individuals, and is often considerably varied by disease.

Though nausea generally accompanies vomiting, this is scarcely a necessary connexion: some emetics acting without occasioning much nausea, while others induce it in a much greater degree than is proportioned to their emetic power.

The feeble and low pulse which accompanies vomiting, has been ascribed to direct association between the motions of the stomach and those of the heart, or it may be owing to the nausea excited, which being a disagreeable sensation, is equivalent to an abstraction of stimulus.

It is supposed also, that a sympathy exists between the stomach and the surface of the body, so that the state of the vessels of the one part is communicated to the vessels of the other. Hence vomiting is frequently followed by diaphoresis.

Emetics powerfully promote absorption.

They often occasion increased evacuation by the intestinal canal, more especially when they have been given in too small a dose to excite vomiting, an effect arising from their stimulating power.

Lastly, several of the effects of vomiting have been ascribed to the agitation of the body, and to the compression of the viscera, by the action of the diaphragm and abdominal muscles.

Emetics are employed in many diseases.

When any morbid affection depends upon, or is connected with over-distention of the stomach, or the presence of acrid indigestible matter, vomiting gives speedy relief. Hence its utility in impaired appetite; acidity in the stomach; in intoxication, and where poisons have been swallowed.

From the pressure of the abdominal viscera in vomiting, emetics have been considered as serviceable in jaundice arising from biliary calculi obstructing the hepatic ducts.

The expectorant power of emetics, and their utility in catarrh and phthisis, have been ascribed to a similar pressure extended to the thoracic viscera.

In the different varieties of febrile affections, much advantage is derived from exciting vomiting, especially in the very commencement of the disease.

Emetics given in such doses as only to excite nausea, have been found useful in restraining hæmorrhage.

Different species of dropsy have been cured by vomiting, from its having excited absorption. To the same effect, perhaps, is owing the dispersion of swelled testicle, bubo, and other swellings, which has occasionally resulted from this operation.

The operation of vomiting is dangerous or hurtful in the following cases: where there is determination of blood to the head, especially in plethoric habits; in visceral inflammation; in the advanced stages of pregnancy; in hernia, and prolapsus uteri, and wherever there exists extreme general debility.

The frequent use of emetics weakens the tone of the stomach.

An emetic should always be administered in the fluid form. Its operation may be promoted by drinking any tepid diluent or bitter infusion.

The individual emetics may be arranged under those derived from the vegetable, and those from the mineral kingdom.

CLASS VI.—CATHARTICS.

Cathartics are medicines which quicken or increase the evacuation from the intestines, or which, when given in a sufficient dose, excite purging. They evidently act by augmenting the natural peristaltic motion, from their stimulant operation on the moving fibres of the intestines, whence the contents of the canal are more quickly propelled. The greater number, or perhaps all of them, seem likewise to stimulate the extremities of the exhalant vessels terminating on the internal surface of the intestines, and hence the

evacuations they occasion are not only more frequent, but thinner and more copious.

Besides these immediate actions, the stimulant operation of cathartics appears to be more or less extended to neighboring organs, and hence they promote the secretion and discharge of the bile, and other fluids usually poured into the intestinal canal. It is also exerted on the stomach, so as to occasion a more quick evacuation of the contents of that organ by the pylorus.

Besides the differences between individual cathartics in quickness, slowness, or other circumstances attending their operation, there is a general difference in the mode in which they act, from which they may be, and usually have been ranked under two divisions. Some operate mildly, without exciting any general affection of the system, without even perceptibly stimulating the vessels of the intestines, and hence they merely evacuate the contents of the canal. Others are much more powerful stimulants: they always occasion an influx of fluids from the exhalent vessels, and neighboring secreting organs; they extend their stimulus to the system in general, and if taken in too large a dose, excite inflammation on the surface of the intestines. The former are distinguished by the title of laxatives; the latter are termed purgatives, and the stronger of them drastic purgatives.

Cathartics, as medicines, are capable of fulfilling various indications.

Where there exists a morbid retention of the contents of the stomach, where these contents are acrid, or where extraneous bodies are present, they are calculated by their evacuating power to relieve the symptoms arising from these affections, and hence their utility in constipation, colic, dysentery, and a variety of febrile affections. Partly by exciting the intestines to action, and partly by extending their stimulus to the other abdominal viscera, cathartics are of service in dyspepsia, hypochondriasis, amenorrhœa, jaundice, and visceral obstructions.

By their power of stimulating the exhalent vessels on the internal surface of the intestinal canal, and causing a larger portion of fluid to be poured out, cathartics are capable of producing a diminution of the fluids with respect to the general system, and of course cause an abstraction of stimulus. Hence purging is a principal part of what is termed the antiphlogistic regimen, and is employed as a remedy of much power in highly inflammatory diseases.

From the same power of causing effusion of fluid, is to be explained the utility of cathartics in the various species of dropsy. A balance is preserved in the system between exhalation and absorption, so that when one is increased, the other is also. The increased secretion and discharge of serous fluid, which cathartics occasion, causes an increased absorption; whence the effused fluid in dropsy is frequently taken up and removed.

Partly by the serous evacuations which cathartics occasion, and partly by the derivation of blood they make from the head, they are highly useful in the prevention and cure of apoplexy, all comatose affections, mania, phrenitis, and headache.

The administration of cathartics is rendered improper by inflammation of the stomach, or intestines, or tendency to it, and by much debility. Several cautions are likewise requisite in their exhibitions. The nausea or griping they frequently produce, may be obviated by the addition of an aromatic, or by giving them in divided doses. The more powerful cathartics should always be given in the latter mode; and in general they irritate less when given diffused in a fluid, than when given in a solid form.

The different cathartics may be considered under the two divisions of laxatives and purgatives; the former being mild in their operation, and merely evacuating the contents of the intestines; the latter being more powerful, and extending their stimulant operation to the neighboring parts.

A division of cathartics remains, intermediate in their operation between the laxatives and purgatives, more powerful than the one, less violent and

stimulating than the other. These are the neutral salts. They seem to act principally by stimulating the exhalant vessels on the inner surface of the intestines; and by the watery evacuation they occasion, are particularly adapted to those cases where inflammatory action, or tendency to it exist.

CLASS VII.—EMMENAGOGUES.

The medicines arranged under this class are those capable of promoting the menstrual discharge.

As the suppression of this discharge is usually owing to debility of the uterine vessels, or want of action in them, the medicines capable of exciting it must be those which can stimulate these vessels.

General stimulants or tonics must have this effect to a certain extent, and there are several stimulants both diffusible and permanent, employed as emmenagogues.

It is doubtful, whether there are any other medicines, which have their stimulant operation particularly determined to the uterine vessels. There are several, however, which, acting on neighboring parts, have their action extended to the uterus, and hence exert an emmenagogue power greater than can be ascribed to any general stimulant operation they exert on the system. Several cathartics act in this manner.

Under one or other of these divisions, may be arranged the principal medicines employed as emmenagogues.

CLASS VIII.—DIURETICS.

Diuretics are those medicines which increase the urinary discharge.

It is obvious that such an effect will be produced by any substance capable of stimulating the secreting vessels of the kidneys. All the saline diuretics seem to act in this manner. They are received into the circulation, and, passing off with the urine, stimulate the vessels, and increase the quantity secreted.

There is still, perhaps, another mode in which certain substances produce a diuretic effect, that is by promoting absorption. When a large quantity of watery fluid is introduced into the circulating mass, it stimulates the secreting vessels of the kidneys, and is carried off by the urine. If, therefore, absorptions be promoted, and if a portion of serous fluid, perhaps previously effused, be taken up, the quantity of fluid secreted by the kidneys will be increased. In this way digitalis seems to act; its diuretic effect, it has been said, is greater when exhibited in dropsy than it is in health.

The direct effects of diuretics are sufficiently evident. They discharge the watery part of the blood; and by that discharge they indirectly promote absorption over the whole system.

Dropsy is the disease in which they are principally employed, and when they can be brought to act, the disease is removed, with less injury to the patient than it can be by exciting any other evacuation.

Diuretics have been likewise occasionally used in calculous affections, in gonorrhœa, and with the view of diminishing plethora, or checking profuse perspiration.

CLASS IX.—DIAPHORETICS.

Diaphoretics are those medicines which increase the natural exhalation by

the skin. When this is carried so far as to be condensed on the surface, it forms sweat; and the medicines producing it are named sudorifics. Between diaphoretics and sudorifics, there is no distinction; the operation is in both cases the same, and differs only in degree from augmentation of dose, or employment of assistant means.

Since diaphoresis, or sweat, is merely the increase of the natural exhalation, it must arise from increased action of the cutaneous exhalant vessels, and the medicines belonging to this class must be those which are capable of exciting that action.

The saline diaphoretics, as they do not sensibly augment the force of the circulation, probably act in the former manner, exerting a particular action on the stomach; which is communicated to the vessels of the skin, or perhaps being received into the blood, and directly applied to these vessels.

Those diaphoretics, on the contrary, which are termed heating, as the aromatic oils and resins, act by directly stimulating the heart and arteries, and increasing the force of the circulation.

Perspiration is not, however, the necessary consequence of the circulation being increased; for the surface often remains dry, where the pulse is frequent and strong. In this case, a morbid constriction of the cutaneous vessels exists, which opposes a resistance to the impetus of the blood. Whatever, therefore relaxes these vessels, will favor the production of sweating.

The primary effects of diaphoretics, are to evacuate the watery part of the blood, and thus lessen the quantity of fluid in the circulating system; to determine the blood to the surface; to increase the action of the absorbents, and to remove spasmodic constrictions of the cutaneous vessels, and render the skin moist.

Changing the state of the vessels on the skin, is the most important, considered in a practical point of view, that diaphoretics produce, as on this their efficacy in fever, in which principally they are employed, depend.

CLASS X.—EXPECTORANTS.

Expectorants have been defined, those medicines which facilitate or promote the rejection of mucus or other fluids from the lungs and windpipe.

There are probably various modes of operation by which certain remedies will appear to promote expectoration, and which will give them a claim to the title of expectorants.

Thus, in certain diseases the exhalant vessels in the lungs, seem to be in that state, by which the exhalation of fluid is lessened, or nearly stopped, and in such cases expectoration must be diminished. Any medicine capable of removing that constricted state, will appear to promote expectoration, and will at least relieve some of the symptoms of the disease.

There is a case of an opposite kind, that in which there is a redundancy of mucus in the lungs, as occurs in humoral asthma. In these affections, certain expectorants are supposed to prove useful. If they do so, it is probably by being determined more particularly in their action to the pulmonary vessels, and by their moderate stimulus diminishing the secretion, or increasing the absorption, thus lessening the quantity of fluid, and thereby rendering the expectoration of the remainder more easy. The determination of these substances to the lungs is often perceptible by their odour in the air expired. A similar diminution of fluid in the lungs may be effected by determining to the surface of the body, and those expectorants which belong to the class of diaphoretics probably act in this manner.

Expectorants, then, are to be regarded, not as medicines, which directly assist the rejection of a fluid already secreted, but rather as either increasing,

the natural exhalation where it is deficient or diminishing the quantity of fluid where it is too copious, either by stimulating the pulmonary vessels, or by determining to the surface. In both cases expectoration will appear to be promoted or facilitated.

Inflammation of the lungs, catarrh and asthma, are the principal diseases in which expectorants are employed; and the mode in which they prove useful will be apparent from what has been said of their operation.

CLASS XI.—SIALAGOGUES.

Sialagogues are substances which increase the quantity of the salivary discharge. This may be effected by the mastication of certain acrid substances, or by the internal exhibition of certain medicines.

CLASS XII.—ERRHINES.

Errhines are medicines which occasion a discharge from the nostrils, either of a mucous or serous fluid. They all operate by direct application, and generally in consequence of a greater or less degree of acrimony which they possess. Their practical uses, it is evident, must be very limited. By the evacuation which they occasion, it is supposed that they may diminish the quantity of fluid in the neighboring vessels; and that they hence may prove useful in rheumatic affections of these parts, in headache, pain of the ear, and ophthalmia. They are sometimes used with advantage in some of these affections. It has likewise been imagined that they may be of use in preventing apoplexy.

CLASS XIII.—EPISPASTICS AND RUBEFACIENTS.

These, as they operate on the same principles, and produce the same effects only in different degrees, may be considered merely as subdivisions of one class.

EPISPASTICS.

Epispastics are those substances which are capable, when applied to the surface of the body, of producing a serous or puriform discharge, by exciting a previous state of inflammation. The term, though comprehending likewise issues and setons, is more commonly restricted to blisters—those applications which, exciting inflammation on the skin, occasion a thin serous fluid to be poured from the exhalents, raise the cuticle, and form the appearance of a vesicle. This effect arises from their strong stimulating power, and to this stimulant operation, and the pain they excite, are to be ascribed the advantages derived from them in the treatment of disease.

It is a principle sufficiently established with regard to the living system, that where a morbid action exists, it may often be removed by inducing an action of a different kind in the same or in a neighboring part. On this principle is explained the utility of blisters in local inflammation and spasmodic action, and it regulates their application in inflammations of the lungs, stomach, liver, brain, and throat, rheumatism, colic, and spasmodic affections of the stomach; diseases in which they are employed with the most marked advantage.

Lastly, blisters, by their operation, communicate a stimulus to the whole

system, and raise the vigor of the circulation. Hence, in part, their utility in fevers of the typhoid kind, though in such cases they are used with still more advantage to obviate or remove local inflammation.

RUBEFACIENTS.

Rubefacients excite pain and inflammation, but in a less degree than blisters, so that no fluid is discharged. They stimulate the system in general, and obviate local inflammation, and are used for nearly the same purposes as blisters.

Any stimulating application may be used for this purpose.

Cantharides added in a small proportion to a plaster, or the tincture of cantharides applied by friction to a part, is often employed as a rubefacient.

Ammonia mixed with one, two, or three parts of expressed oil, forms a liniment frequently used for this purpose in rheumatism, angina, and other cases of local inflammation.

REMEDIES ACTING CHEMICALLY.

CLASS XIV.—REFRIGERANTS.

The remedies comprised under this class have been usually defined, substances which directly diminish the force of the circulation, and reduce the heat of the body, without occasioning any diminution of sensibility or nervous energy.

All acids are supposed to be refrigerants; but the vegetable acids are allowed to possess this power in a more eminent degree.

The native vegetable acids are found chiefly in the fruits of vegetables. The sour juice of these fruits consists either of the citric or malic acids, or more frequently of a mixture of both. The citric acid is that which is most largely employed, as it forms chiefly the acid juice of the orange and lemon, the two acid fruits in common medicinal use.

CLASS XV.—ANTACIDS.

Antacids are remedies which obviate acidity in the stomach. Their action is purely chemical, as they merely combine with the acid present, and neutralize it. They are only palliatives, the generation of acidity being prevented by restoring the tone of the stomach, and its vessels. Dyspepsia and diarrhoea are the diseases in which they are employed.

CLASS XVI.—ESCHAROTICS.

Escharotics are substances capable of dissolving animal matter; applied to the skin, they erode it, and to an ulcer, they remove its surface. They are employed to consume excrescences, to open an ulcer, and to change the diseased surface of a sore already existing. Their action is entirely chemical.

REMEDIES ACTING MECHANICALLY.

CLASS XVII.—VERMIFUGES.

Vermifuges are those medicines used to expel worms from the intestinal canal. The greater number of them act mechanically, dislodging the worms, by the sharpness or roughness of their particles, or by their cathartic operation. Some seem to have no other qualities than those of powerful biters, by which they either prove noxious to these animals, or remove that debility of the digestive organs by which the food is not properly assimilated, or the secreted fluids poured into the intestines are not properly prepared; circumstances from which it has been supposed the generation of worms may arise.

CLASS XVIII.—DEMULCENTS.

Demulcents are defined, “Medicines suited to obviate and prevent the action of acrid and stimulant matters, and that, not by correcting or changing their acrimony, but by involving it in a mild and viscid matter, which prevents it from acting upon the sensible parts of our bodies,” or by covering the surface exposed to their action.

Catarrh, diarrhœa, dysentery, calculus, and gonorrhœa, are the diseases in which demulcents are employed. As they are medicines of no great power, they may be taken in as large quantities as the stomach can bear.

The particular demulcents may be reduced to the two divisions of mucilages and expressed oils.

CLASS XIX.—DILUENTS.

Diluents are defined, those substances which increase the proportion of fluid in the blood. It is evident that this must be done by watery liquors. Water is indeed, properly speaking, the only diluent. Various additions are made to it to render it pleasant, and frequently to give it a slightly demulcent quality. But these are not sufficiently important to require to be noticed, or to be classed as medicines.

Diluents are merely secondary remedies. They are given in acute inflammatory diseases, to lessen the stimulant quality of the blood. They are used to promote the action of diuretics in dropsy, and to favor the operation of sweating.

CLASS XX.—EMOLLIENTS.

Emollients are those medicines which diminish the force of cohesion in the particles of the solid matter of the human body, and thereby render them more lax and flexible. Their operation is mechanical; they are innuated into the matter of the solid fibre, and lessen the friction between its particles. They are useful when the fibres are rigid, or when they are much extended, and therefore afford relief when topically applied to inflamed parts, to tumors distending the skin, or where the skin is dry and rigid.

Heat conjoined with moisture is the principal emollient; and water ap-

plied warm by the medium of some vegetable substances, constituting the various fomentations and cataplasms, is the form under which it is applied, the vegetable matter serving to retain the heat, and to allow the proper application of the moisture.

Oils and unctuous substances are the only other emollients; they are merely introduced by friction. Any of the expressed oils already noticed, or lard, may be used for this purpose.

The preceding observations are inserted to give a general idea of the virtues of such medicinal substances as are possessed of the qualities which make the objects of the respective articles. I shall now proceed to an account of each of the remedies separately; commencing with botanical, or vegetable medicines, which will receive more particular attention; they being more in accordance with the objects of this work. Together with native plants, such foreign medicines will be described as are serviceable and in common use.

MEDICAL PLANTS, BALSAMS, GUMS, &c.

ADDER'S TONGUE.—*Erythronium Lanceolatum*.

This small herb has but one leaf, which grows with the stalk a finger's length above the ground, being flat and of a fresh green color, broad, like water plantain, but without any middle rib in it. From the bottom of the leaf there arises one, and sometimes two or three small slender stalks, the upper part of which are larger, serrated, and of a yellowish green color, like the tongue of an adder. It grows in low moist places, appearing early in the spring. Roots perennial.

The expressed juice of the plant infused in wine or cider, is said to relieve dropsies. It is also a good remedy for wounds in the breasts, or bowels, and stays hiccupping, vomiting, hæmorrhage; allays inflammations, and forms a good healing application for wounds.

AGRIMONY.—*Agrimonia*. The herb and root.

This plant rises two or three feet in height; branching towards the top, bearing yellow flowers, succeeded by a small bur, which will stick to the clothes; its leaves alternate, growing on a stem having five or six pairs, and an odd one at the end. It grows in cultivated fields, by the road sides, and in woods; blooms in July and August, and is sometimes known by the names of cockle-burr, stickwort, &c.

It is a mild astringent, corroborant, and tonic, and therefore given for a lax tone of the bowels and solids. Taken in the form of a tea of both root and herb, for a long time, it will almost invariably cure the scrofula. Useful, also, in coughs, obstructed menses, bowel complaints, gravel, asthma, and cutaneous diseases. The best way to take it is in a strong decoction, sweetened with honey.

ANGELICA.—*Angelica Sylvestris*. The root.

This plant grows from two to four feet high, having large round hollow stalks, with small joints at a considerable distance from each other; leaves on large stems, flowers white, umbelliferous, seeds resembling parsnip, ripe

in August, and have a pungent aromatic taste; the root biennial, long and thick, hung with many fibres. It grows spontaneously in intervalles, and rich places by the side of streams.

This root is an excellent aromatic, carminative, emmenagogue, discutient, and sialagoguc. Alone, or combined with tonics, it is excellent in flatulency, or wind colic, pain in the stomach, debility, &c. The fresh root, bruised and laid on inflammatory tumors, disperses them. Steeped in vinegar, and drank, or the root chewed, it is an infallible preservative against epidemics or infection. It raises the spirits, strengthens the stomach, and causes an appetite. It may be taken in powder, a tea spoonful at a dose, or the seeds and roots may be steeped gently in water, or infused in spirits.

BLACK ALDER.—*Prunus Verticillatus*. The bark and berries.

This is a very common shrub in many parts of the United States, and grows in the greatest perfection in swamps and marshy places. The outer bark is of a blackish color, but the inner is yellow, and being chewed, turns the spittle to a saffron color. The berries are of a fine red color, and may be seen in the winter.

The bark is astringent, and is likewise considerably bitter and pungent. It has been used as a substitute for the Peruvian bark, in intermittents and other diseases, both in substance and decoction. It is chiefly useful as a tonic and corroborant, in cases of great debility, and in dropsies and incipient gangrene. It is both given internally, and used externally as a wash. The berries, infused in wine or brandy, make an excellent bitter tincture, and preservative against worms.

Care should be taken to distinguish the black alder from the swamp alder or tag alder.

A decoction of the bark and berries, drank continually, is a valuable remedy for the bleeding piles.

SWAMP OR TAG ALDER.—*Alnus Rotundifolia*. The bark.

This is a swamp tree, growing from ten to twenty feet high, and receives its name from the tags with which it is covered during the winter.

In decoction, or in beer, it is used very frequently as a detergent, and alterative to the blood. An ointment made from it is good in burns and inflammation.

ALEXANDER, OR WILD PARSLEY.—*Petroselinum*. The seeds.

This is a biennial plant, root long and very thick, smell strong, sharp acrid taste, leaves doubly compound, numerous, and proceed immediately from the root. The main leaf stalk is divided into three principal branches, and each of these subdivided into three others, which support a number of short, oval, serrated leaves; its stem is firm, upright, and scored on the surface, and grows from four to six feet high; the seeds are shaped like a crescent. It grows in low meadows, flowers in July, and the seed is ripe in September.

The seed only is used in medicine, and is a warm and powerful diuretic. It may be combined with marsh-mallows in decoction, in proportion of four ounces of the seeds to two ounces of marsh-mallows, boiled to three quarts, and sweetened with honey, a tea-cup full for a dose. It is warming to a cold stomach, and removes obstructions of the liver and spleen.

ALOES, SOCOTORNIC AND HEPATIC. The gum resin.

A perennial plant, consisting of many varieties, which grow in the south of Europe, Asia, Africa, and America. The *Socotornic* is considered the

purest, and is brought from the island of Socotra, wrapped in skins. It is in small pieces of a reddish brown color, with a purplish cast, when reduced to powder, of a bright golden shade. Its taste is bitter, accompanied with an aromatic flavor; the smell is not unpleasant, and slightly resembles that of myrrh. The *Barbadoes* aloes is in large masses, of a lighter color, and has an odor much stronger and more unpleasant than the former. The *Hepatic* is of a similar kind. The horse aloes is still more impure, and is weaker in its power.

Aloes is a warm, stimulating purgative, and considerably vermifuge. Its medium dose is from five to fifteen grains, nor does a larger quantity operate more effectually. Taken in doses of a few grains, mixed into pills with soap, it acts as a gently stimulating laxative.

ANISEED.—*Pimpinella Anisum*.

Anise is an annual plant, growing naturally in Crete and Syria. The seeds have an aromatic odor, and a warm taste, with a share of sweetness. An essential oil is obtained from it. It is a good carminative in dyspepsia, and in the flatulence to which children are subject. A drachm or two of the seeds is a dose, or a few drops of oil dropped on sugar.

ARCHANGEL. The herb and flower.

Also called, dead nettle; there are three kinds: red, white, and yellow archangel, but similar in virtues. Each have several square stalks, hairy at the joints, with two green serrated leaves opposite each other at the lower joints, upon long foot stalks, but without any toward the tops, which are somewhat round, yet pointed, crumpled and hairy; round the upper joints, embedded in leaves, are gaping flowers of a pale red color, or white or yellow, as the case may be. The root is small and thready, and annual; the plant has a strong, but not stinking scent.

The herb infused in wine, is stimulating, detergent, and a preservative against fevers, and particularly the ague. The flowers are useful in restraining the whites in women. Applied externally, it is discutient to indolent tumors, and cleansing to filthy ulcers.

ARSE-SMART. The herb.

This valuable remedy grows in our country every where, though few know the great use of it. It is a powerful antiseptic, and allays inflammation, discusses cold swellings, particularly such as affect the knee joint, and dissolves congealed blood in bruises, blows, &c. For these purposes it should be applied in strong decoction and poultice. The juice destroys worms in the ear, when dropped into them.

Arse-smart may be drank in decoction without any ill effects. It has been used in gravel and other obstructions of urine with great benefit; for curing coughs and colds it is remarkably efficacious. It has also been used as a vermifuge. The piles may be cured by this herb, taken internally and applied externally.

ASARABACCA.—*Asarum Americanum*. The leaves and root.

Called also wild ginger, cat's foot, Canada snake root, coltfoot, &c. This is an humble stemless plant; the leaves rise immediately from the root, and are usually two in number, resembling a cat's foot. The flowers proceed from between these leaves, and are large, purple, and bell-shaped. The root is fibrous, of a grey brown color externally, but white within. It grows throughout the United States, in shady woods and rich soil. Both the root and leaves have a nauseous, bitter, acrimonious, hot taste.

American asarabacca is aromatic, stimulant and diaphoretic, cordial emmenagogue, tonic, errhine, &c., but not properly emetic, like the European species, though a large dose will operate both as an emetic and cathartic. It is useful in debility, melancholy, palpitations, low fevers, convalescence, obstructions, whooping-cough, &c. The doses must be small and often repeated, since it becomes nauseous in larger doses. It may be given in decoction, or in cordial.

The principal use of this plant, among modern practitioners, is as a stercutatory, being one of the strongest of all vegetable errhines, and very useful in all disorders of the head and eyes. Snuffed up the nose, in quantity of a grain or two, it causes a large evacuation of mucus.

INDIAN ARROW ROOT. The root.

This root is imported from the West Indies, and has been much used as a diet for sick people. It is nutritious and mucilaginous, and good in bowel complaints; but is more an article of luxury than of necessity, and its place may be supplied nearer home.

ASSAFÆTIDA. The gum resin.

The plant which furnishes assafœtida is a native of Persia. The gum is procured from the roots, and comes in large irregular masses, composed of little shining lumps or grains, which are partly of a whitish color, and partly reddish and violet. Those masses are accounted best, which are clear, of a pale reddish color, and variegated with a great number of elegant white tears. The drug has a strong fœtid smell, somewhat like that of garlic, and a bitter, acrid, biting taste. It is the most powerful of all the fœtid gums, and is a valuable remedy. It acts as a stimulant, antispasmodic, expectorant, emmenagogue, and vermifuge. Its action is quick and penetrating, and it affords great relief in spasmodic, flatulent, hysteric, or hypochondriacal complaints, especially when they arise from obstructions of the bowels. It is given in the form of pills, in doses of from five to twenty grains, alone, or combined with bitter purgatives or extracts; or it may be given in tincture, or dissolved in water. In the form of a clyster, two or three drachms may be given.

AVENS.—*Geum Virginianum*. The root.

Also called Evan's root, chocolate root, cureall, &c. This plant rises about two feet high, root fibrous, very pleasant and aromatic; leaves large and lyre-shaped, stalk upright, flowers white or yellow, and terminal. It is a perennial plant, and grows uncultivated throughout the United States. The roots have the flavor of cloves, with a bitterish astringent taste. The large roots are preferable to the fibrous ones, which should be dug in April, cut in thin slices, and dried in the air as quick as possible; then pulverize, and bottle it up for use.

Aven's root is a noble medicine in all cases of beginning consumptions and debility. There are several species of avens, but they all possess similar qualities, viz., astringent, styptic, tonic, febrifuge, stomachic, &c. It is preferable to the Peruvian bark in the cure of intermittents, dysentery, chronic diarrhœas, wind colic, affections of the stomach, asthmatic symptoms, and cases of debility; whites, flooding, sore throat. The continual use of it has restored to health the most shattered and enfeebled constitutions, and is probably as effectual as any one single article in arresting a consumption. In a fever, after proper evacuations, it may be given till the fever is broke. The doses are daily, a pint of a weak decoction, or about sixty grains of the powder, divided into three doses, and mixed with horey.

This root has formed a principal ingredient in the popular Indian chocolate, for consumption.

BACKACH BRAKE. *Polypody silex*. The root.

Also called female fern. There are two kinds of fern, or brake, namely, the male and female; their qualities are similar. The female fern is of the fan species, grows higher than the male, though the leaves are less, and more divided. The same species, or another, I know not which, grows in swamps, and is that used more particularly in facilitating the delivery of women. The root is about the size of a goose-quill, lying horizontal, of a brown color, very sweet, and of a mucilaginous taste. It grows plentifully in low, moist pastures, in swamps, or near ponds.

The root is a good pectoral and demulcent. Made into decoction, with a little spirits added, it forms an excellent preparatory medicine for the delivery of females, softening, relaxing, and rendering the operation much easier. It should be taken for a few days previous to the expected time. An excellent syrup for coughs may be made from it by boiling it to a decoction and adding honey. This should be taken continually.

The following liquor has cured a most inveterate back-ache, or lumbago: Boil one pound of the fresh roots of the brake, and one ounce of sumac root bark, cut small, in two quarts of rum till it becomes slimy. Dip brown paper in this liquid, and bind it across the back, after taking a laxative, repeating the application every hour till well. Rub the spine and sacral bone with a piece of flannel dipped in the liquid for ten minutes before you apply the paper. The same application, together with a decoction of the brake internally, is very serviceable in the rickets.

BALM.—*Melissa Officinalis*. The leaves.

The stem rises about three feet in height, leaves egg-shaped, and of a bright green color, flowers white, perennial; grows wild in low meadows, wet grounds, and in gardens, throughout the United States; has a pleasant smell, and an aromatic taste. It is well known.

It has been found beneficial for a common drink in inflammatory fevers and pleurisies, as a diluent and diaphoretic, removing obstructions and equalizing the circulation. It is a pleasant, cooling drink, promotes perspiration, and allays thirst; lemon juice may be added.

BALSAM OF FIR. *Pinus Balsamea*.

The liquid resin, called balsam of Canada. It exudes spontaneously from the trunk of the fir tree; is of a light yellow color, tenacious and inflammable. By keeping, it becomes thicker. The medicinal virtues of this balsam seem to be the same as those of copaiva, and is used for the same purposes. Its dose is from thirty to fifty drops. It is soluble in alcohol and oils, and affords an essential oil by distillation.

BALSAM COPAIVA.

The tree which produces the balsam copaiva is a native of the Spanish West Indies, and of some part of the continent of South America. It grows to a large size, and the resinous juice flows in considerable quantities from incisions made in the trunk. It is thick, tenacious, with a yellowish tinge, has a peculiar smell, and a pungent bitter taste.

Balsam copaiva increases the urinary discharge, and communicates to the urine a violet odor; in too large a dose it excites inflammation of the urinary passages. From its power of stimulating the parts it frequently proves

successful in the cure of gleet and the whites. It is a useful corroborant and detergent. It strengthens the nervous system, tends to loosen the bowels, promotes urine, and cleanses and heals exulcerations in the urinary passages. It is recommended in coughs and diseases of the chest and lungs. The dose should not exceed from twenty to thirty drops twice or three times a day. It may be taken on sugar or mixed with gum arabic.

BALSAM OF TOLU.

This tree grows in Spanish America, and the balsam is obtained by incision, during the hot season. It is of a yellowish brown color, inclining to red. This is the mildest of all the balsams. It has been esteemed as an expectorant, but its powers are very inconsiderable, and it is employed principally on account of its flavor. It possesses, however, all the virtues of the other balsams, and is more fragrant than the most of them.

BALSAM OF PERU.

This tree grows in the warmest provinces of South America, and is remarkable for its elegant appearance. Every part of it abounds with resinous juice. Balsam of Peru is a very warm aromatic medicine, considerably hotter and more acrid than copaiva. Its principal effects are to warm the habit, strengthen the nervous system, and attenuate viscid humors. Hence its use in some kinds of asthmas, gonorrhœas, dysenteries, suppressions of the menses, and other disorders proceeding from debility of the solids. It is also employed externally for cleansing and healing wounds and ulcers. Two drachms in twenty-four hours is a sufficient dose.

BALM OF GILEAD.

The buds of this tree, in tincture, are very healing for internal ulcerations, and remove pains and other affections of the stomach and chest. Its virtues, however, are similar to those of other balsams. It was anciently obtained from a tree near Mecca, and was so highly prized as to be used only by princes. The pure balsam never reaches this country; it is adulterated and of an inferior quality, and of little medical account. The balm of Gilead that has been transplanted to America is supposed not to be the genuine tree of the Arabians.

BARBADOES TAR, OR ROCK OIL.—*Petroleum.*

Rock oil is a bitumen of a red color, and thick consistence, of a disagreeable smell, and a bitter acrid taste. In medicinal virtues, it participates of those of oil of amber, and of turpentine. It is, at present, very rarely employed as a medicine, some of the more common mineral oils being preferred. An oil extracted from a kind of stone coal, has been extolled under the name of British oil, for external purposes, against rheumatic pains, paralytic complaints, and for preventing chilblains. The rock oil is esteemed by the inhabitants of the West Indies, as a sudorific, and serviceable in disorders of the head and lungs.

BARBERRY.—*Berberis Vulgaris.* The bark and berries.

It grows in the form of a bramble, from one to six feet high, by the sides of roads and hedges; bears clusters of long red berries, which are ripe at the time of frost, but stay on through the winter; they are a pleasant sharp acid, and are often made use of in preserves, as a jam, which is very grateful in acute diseases. The bark of the root, boiled and made into beer, has cured the jaundice; it makes a very pleasant detergent bitter. The leaves

and berries, made into a conserve, are beneficial in putrid fevers, bilious diarrhœa, dysentery, &c.

BARLEY. Pearl (or hulled) barley.

Pearl barley is the seed stripped of its husk. In diseases of the kidneys and the breast, as well as in that state of the body when it is said to abound in acrimonious humors, decoctions made of this grain, sufficiently strong, and acidulated with vinegar, are eminently useful. As a cooling and diluent beverage, barley water is of essential service to febrile patients, and in all inflammatory cases, where preternatural heat and thirst prevail.

BAYBERRY.—*Myrica Cerifera Humilis*. The bark of the root.

This shrub rises three or four feet in height, is scraggy, with many branches set full of long, smooth, green leaves; from the sides of the branches grow small green berries, covered with a pale green tallow. It grows plentifully in the New-England States, and in other parts. A tallow is obtained from the berries by boiling, known as bayberry tallow.

The leaves and berries are warm carminatives, stomachic, emmenagogue, beneficial in palsies, colic, hysterical complaints, and promote urine. But the bark is chiefly used. It is eminently serviceable in scrofulous affections, for which it should be drank in decoction, and constantly applied to the tumor as a discutient poultice. This application will not be found inferior to any other, or all species of scrofulous swellings. The decoction of bayberry bark is a good remedy for jaundice, and is effectual in removing all obstructions of the liver, spleen, kidneys, and urinary passages. It has also been employed in dysentery, and dropsy. The bark, chewed, is a good sialagogue; and when pulverized, forms a most powerful sneezing snuff, which may be used with great advantage in many diseases of the head. Bayberry is one of the most valuable medicinal plants that we have.

SWEET BASIL.

This is a cultivated plant growing in gardens. According to Culpepper, it will extract the poison of serpents, or of wasps and hornets, when applied to the wounded part. He also says it will expel both birth and after-birth.

BEARBERRY.—*Uva Ursi*. The leaves.

This is an evergreen shrub, or vine; the leaves oval, not toothed, of a pale green color, and smooth on the under side; flowers whitish, terminating the stem in clusters. It grows on mountains, and dry upland, in different parts of the United States, and in some places it is known by the name of *wild cranberry*.

The leaves have a bitterish taste, and are astringent and tonic, in which their medical virtue consists. It is excellent in all debilitating discharges, and particularly in ulcerations of the kidneys, bladder, and urinary passages; in fluor albus, diabetes, excess of menses, diarrhœa, dysentery, &c. Professor Barton commends it highly, from experience, in affections of the kidneys proceeding from gout, and has found it serviceable in old gonorrhœa. It may be exhibited in decoction, or in powder, a tea spoonful at a dose, three or four times a day.

Haller recommends the acid liquor distilled from the herb as an effectual remedy in gravelly complaints. He says, that this acid, double distilled, taken from half a gill to a gill, four times a day, attacks the calculi formed in the human body, reduces them to small pieces, and softens those it does not break, so that they may be discharged. It has not maintained this high

character, however, of late years, although it is an excellent medicine for the purposes above mentioned.

BEECH DROPS, OR CANCER ROOT.

This plant grows out of the roots of beech trees, in low grounds, and rises six or eight inches in height, of a brown glossy color, with brittle sprigs, but no leaves. The root is bulbous, similar to a cancer, from whence it derives its name. It must be gathered before the frost touches it.

The beech drops are a powerful astringent, and cancers have been effectually cured by the application of the fresh bruised root, frequently applied. It is very beneficial in the cure of St. Anthony's fire, and canker in the throat. It may be prepared by boiling eight ounces of herb to two quarts, and sweetened. After proper evacuations, persons subject to the erysipelas may take a tea cupful of this decoction four times a day, at the same time applying cloths to the inflamed part, wet with the decoction, not sweetened, and continue till well.

BETH ROOT.—*Trillium Atropurpureum*.

This is a beautiful modest plant, and is generally known throughout the country, although most people are ignorant of its value. It rises about a foot high, has three large leaves at the top of the stem, from between which appears a solitary flower, bell-shaped, and of a purple or white color. The root is bulbous and full of small fibres, of a brown color externally, and white within.

Beth root is a powerful astringent and tonic, and is also considerably carminative. It is an admirable medicine in all species of female weakness and debility, particularly in the whites, and bearing down of the womb; for which purposes I have used it for many years, and have seldom been disappointed in its operation. It is very bracing, strengthening, and stimulating, and is grateful to the spirits. My method of preparing it will be found among the recipes. In floodings, bloody urine, and other hæmorrhages, it is very effectual in restraining them; the dose may be a tea-spoonful of the pulverized root three or four times a day, in yarrow tea or something similar. Beth root and blood root, equal quantities, mixed with honey, form an excellent application for arresting gangrene or destroying a carbuncle.

BETONY.—*Betonica Officinalis*.

This plant rises about a foot in height; the stem square and hairy, the upper leaves on short foot-stalks, the lower on long, opposite, and hairy; the flowers in spikes, composed of several whorls, of purple color. It grows in upland woods and old pastures, in every part of the United States.

The roots are emetic and cathartic; the leaves and flowers are corroborant and detergent; and the leaves alone are cephalic. It has been found effectual in the cure of the gout and chronic rheumatism. For these purposes, take a table spoonful of the powdered leaves twice a day, in a dish of prickly-ash tea; and also drink an infusion of the herb, made by pouring a quart of boiling water on a handful of the herb, taking a tea cupful four times a day. Two parts of betony leaves and one of asarabacca leaves, finely pulverized and mixed, form an agreeable cephalic snuff, very useful in giddiness, head-ache, megrimms, &c.

BLACK BIRCH. The inner bark.

The bark of this well known tree, is of some medicinal account. A tea made of it, and drank with milk, for a daily drink, is very useful to bring milk

into womens' breasts, and to render them fruitful. The sap of the tree, drank freely, is good in gravelly obstructions; it is also anti-scorbutic and cleansing, and heals a sore mouth.

BISTORT, or SNAKEHEAD. The root.

This plant is perennial, and is a native of Great Britain. The root is about the thickness of the little finger, of a blackish brown color on the outside, and reddish within; it is writhed, or bent wormlike, with a joint at each bending, and full of bushy fibres. All the parts of the bistort have a rough austere taste, particularly the root, which is the strongest of the vegetable astringents.

The root of the bistort is employed in all kinds of immoderate fluxes, both externally and internally when astringency is the only indication. It is certainly a powerful styptic, and is to be looked upon simply as such; although it possesses, consequently, some degree of antiseptic power, in common with other styptics. The largest dose of the root in powder is one drachm.

BITTER SWEET.—*Celastrus Scandens*.

[This article of the *Materia Medica* is sometimes called Fever Twitch and Staff Vine.

The real bitter-sweet is a woody vine, climbing trees sometimes to the height of thirty feet, but commonly not higher than fifteen; and when no tree or bush comes in the way, it creeps on the ground. When it climbs a sapling or small bush, it winds itself around and leaves its dent in the tree or bush of a spiral shape, or, in other words, it leaves its track on young trees that are growing.

The leaves are ovate and pointed, of a light green hue; the berries hang in clusters, and become red in the fall. The roots are of an orange red color, pretty large and long.]

The bitter-sweet is a powerful and useful medicine, though, like most of the invaluable medicinal plants which nature so profusely furnishes to our hands, its virtues are appreciated but by few. It increases all the secretions and excretions, particularly sweat, urine, and stool, and excites the heart and arteries. It is an excellent discutient, detergent, and resolvent medicine, and may be employed both externally and internally. It is peculiarly beneficial in real liver complaints, and in all cutaneous affections; also in rheumatism, scirrhus swellings, ill-conditioned ulcers, scrofula, whites, jaundice, and obstructed menses. Cancers of the breast have been cured by the application of the juice over the cancer, and the green leaves applied to the breast. For internal use, boil half a pound of the bark to one gallon, the dose a gill three times a day. It is also good in fevers and dropsical swellings.

The bitter-sweet ointment, the preparation of which will be found among the recipes, is of superior efficacy in diseases of the breast to which women are subject after delivery.

[Dr. Cammel, of New-Jersey, has used this root to eradicate the effects of mercury with success.]

BITTER SWEET NIGHTSHADE.—*Solanum Dulcamara*.

The bitter-sweet is a woody vine, creeping or climbing to the extent of five or six feet, base woody, end or last shoots herbaceous, flexuose, without thorns, smooth, terete. Leaves alternate, petiolate, ovate acute, entire, base subcordate, and often with one or two small lobes like auricles at the base, with obtuse sinusses. Flowers on peduncles opposed to the leaves, bearing a loose cluster or cymose panicle of many flowers, of a pretty violet color,

with yellow anthers. Calyx small, acute. Corolla nearly five parted, segments acute, ovate, lanceolate, each with two whitish dots or glands at the base, often reflexed. Filaments very short, anthers erect, forming a yellow conical tube. Pistil oval, style filiform, exert, stigma obtuse, simple. Berries oval, of a bright scarlet.

The whole plant is used as a depurative, deobstruent, antiherpetic, narcotic, diuretic, anodyne, repellent, &c. The taste is sweetish and bitter, whence the name; its smell is somewhat nauseous, but much less so than in *S. nigrum* and other species. Its active principles are the solanic acid, a peculiar substance called *solanina*, a mucous extractive, &c.: they are more soluble in water than alcohol. A very beneficial article in many diseases, now neglected by the chemical school, but adequate to produce nearly all the good effects of sulphur, antimony, and mercury, in chronic rheumatism, gout, secondary syphilis, incipient phthisis, asthma jaundice, herpes, lepra, and all cutaneous affections. It has also been used in pleurisy, peripneumonia, dyslochia, amenorrhœa, and scrofula. While externally, it is very useful in contusion, the itch, herpetic sores, sore nipples, scirrhus swellings, nay, even the cancer, and the worst kind of ulcers. The common way to use it is in decoction; but the American varieties are very powerful. Bigelow states that a few grains of the fresh leaves, or a small cup of the decoction, have been known to excite vomiting. A great difference in strength is observed in the various parcels kept in the shops; the plants growing in a dry soil and warm climate are strongest; by drying much of their strength is lost.

A slight nausea, vertigo, and palpitation are evidences of its operation. A palatable syrup may be made with it and some aromatic substances. In general, it increases all the secretions and excretions, excites the heart and arteries, and in large doses produces emesis, spasms, delirium, giddiness, palpitations, convulsions, and insensibility.

The first doses ought always to be moderate and gradually increased, beginning with one ounce of the decoction, or five grains of the extract, three times a day. Dr. Haller and others have cured the cancer by topical application of the juice and green leaves. It is perhaps the best cure for the loathesome lepra, by using it internally, and externally as a wash; also for all kinds of herpetic eruptions, ulcerous sores, &c., in the same way. It is deemed a valuable auxiliary to mercury in syphilitic eruptions. Thus it avails in all cutaneous diseases of the skin; twenty-one cases of lepra were cured out of twenty-three, by Dr. Chricton. It increases the power of sarsaparilla in all cases, and is an ingredient in all depurative medicines and panaceas. It is a palliative in pituitous and tubercular phthisis. It always acts as a diuretic and aperient. It has been found useful in chronic venereal pains, osteocopic pains, inflammatory fevers, violent asthma, chronic rheumatism, and stiffness of the muscles and joints.—*Rafinesque's Botany*.

BLACK HENBANE.—*Hyoscyamus Niger*. The herb and seeds.

This poisonous plant rises from one to two feet in height; the leaves are large, cut into irregular lobes, or pointed segments, undulated, and embrace the stem; flowers bell-shaped, color a dingy yellow, and purple streaks, which is a characteristic mark of all poisonous herbs or plants. Henbane has a rank, strong, fetid smell, and an insipid taste; when burnt it smells like tobacco. It is an annual plant, and grows by the side of roads and fences, and about old ruins; it is found in most of the Northern and Western States.

Its properties are narcotic, anodyne, phrenetic, anti-spasmodic, repellent, and discutient. The whole plant may be used; but the seeds are preferable. It is chiefly used in extract, however, which should be made from the juice,

without boiling, by drying in the sun. The dose is from one to fifteen grains, according to its effect. It operates as a powerful narcotic, and if taken in large doses it produces drowsiness, intense thirst, head-ache, dilatation of the pupil, delirium, and other symptoms of vegetable poison. But taken in a proper dose, it eases pain and produces sleep, and is efficacious in palpitations of the heart, coughs, spasms, convulsions, madness, epilepsy, hysterical complaints, and a variety of nervous maladies, and dropsies; far superior to opium in such complaints, leaving the stomach soluble, without affecting the head. Combined with valcrian, it forms an excellent remedy in the tic douloureux.

The external use of henbane is very efficacious as a discutient in hard and scirrhus tumors, and cancers, and is similar in effect to stramonium. It is an excellent cleansing application for old foul ulcers.

BLACKBERRY. The bark of the root.

The bark of blackberry roots, boiled in milk, is a good remedy in dysentery. It should be taken freely. Or the unripe berries, two pounds, bruised and simmered with one pound of loaf sugar and half a pint of brandy, strained, bottled up, may be given in dysentery. This is one of the best remedies I am acquainted with. [Dr. Atkinson says it is worth its weight in gold in that disease.]

BLACK PEPPER. The fruit.

Pepper, from its stimulating and aromatic qualities, is employed to promote digestion, to relieve nausea, to check vomiting, and hiccup, and as a remedy in retrocedent gout, and paralysis. Its dose is from ten to fifteen grains.

BLACK SNAKE ROOT.—*Radix Anapodophyllon Nigrus*. The root.

This plant rises three feet in height, and its appearance is somewhat similar to agrimony, the leaves divided into five or six clefts, like the strawberry leaf, but much larger, and smooth; blossoms small and blue. The root is black, and fibres shoot out straight in every direction. It grows in meadows and in low woods, among rocks.

It is an excellent sudorific, emmenagogue, aromatic, detergent, and antiscorbutic. A tea of it may be drank freely in all cases where a diaphoresis is necessary, as in most fevers, pleurisy, cold, &c., after the necessary evacuations. The Indians cure the ague by sweating with this root. The yellow fever has been speedily cured by it, the bile having been first evacuated by an emetic. Women, in order to promote the menses, may bathe their feet in warm water, sitting ten or fifteen minutes over the steam of pennyroyal every night, and drink half a pint of the black snake root tea, with a wine glass of rum in it, at bed time. This must be done once or twice before the full or change of the moon.

This root is said to cure the bite of a snake, by chewing and swallowing it and applying it to the bite as a poultice, chewed or bruised.

BLESSED THISTLE.—*Carduus Benedictus*. The herb.

This thistle is an annual exotic plant, cultivated in gardens.

The virtues of this plant, says Dr. Duncan, seem to be but little known in the present practice. A strong infusion, made in cold or warm water, if drank freely, and the patient kept warm, occasions a plentiful sweat, and promotes the secretions in general. The nauseous decoction is sometimes used to promote vomiting, and a strong infusion, to promote the operation of

other emetics. Excellent effects have been frequently experienced from a slight infusion of the thistle, in loss of appetite, where the stomach has been injured by irregularities.

BLOOD ROOT.—*Sanguinaria Canadensis*. The root.

This plant rises early in the spring about six or eight inches high, with large scollopped leaves, somewhat resembling white-oak leaves, and a small white flower; root about the size of the little finger, blood red, and fibrous. It grows in low grounds, among rocks, in meadows, or in woods near meadows. There is but one leaf to a stalk.

The root is a powerful emetic, cathartic, emmenagogue, pectoral and sudorific. The powdered root, in doses of fifteen or twenty grains is powerfully emetic, and operates very quickly. In a spirituous tincture, however, it is given with better effect: two pounds of the dry root, or four of the green, may be infused in a gallon of fourth proof spirits, till the strength is extracted. The dose for an adult of this strength, may be about two thirds of a table spoonful, and repeated every ten minutes till it operates, though it seldom requires repetition. This is one of the best emetics for children, in croup, and other obstructions from phlegm, that I have ever administered. It operates beautifully, quickly, and effectually, and is nowise dangerous, for when it reaches the proper quantity it is certain to be ejected.

It is beneficial in the cure of rheumatism, jaundice, and beginning consumptions, and is a good deobstruent and stimulant to the solids. For these purposes, it may be prepared by infusing four ounces of blood root and the same quantity of unicorn root in two quarts of Jamaica spirits. The patient may take a wine glass full twice or thrice a day, in jaundice, and chronic rheumatism: it would be well to begin on half a wine glass, and increase according to its effects. One grain of the root, or ten drops of the saturated tincture, proves efficacious as a stimulant and diaphoretic. The leaves and seeds are a powerful and diffusible stimuli, and promote sweat. A tincture of the root is used to prevent intermittent fever; and a decoction of the root is used to cure the dysentery. It is useful in female obstructions.

BLUE CARDINAL FLOWERS.—*Lobelia Syphilitica*. The root.

This celebrated plant grows in the States of New-Jersey and Virginia, and in other parts of the United States, and is found in moist meadows, and near brooks and springs. It rises two feet in height; flowers blue, long, single, numerous, and spiked; a milky juice, and a rank smell. The root, which is the part used, consists of white fibres about two inches long, resembles tobacco in taste, which remains on the tongue, and is apt to excite vomiting.

It is said to be used among the Indians as a certain cure for the venereal disease; their method of using it was by making a strong decoction of the roots and leaves, of which half a pint was drank every morning, washing the parts with the same. Its virtues in this disease, however, have probably been exaggerated.

Dr. Barton says it is considerably diuretic: it generally disagrees with the stomach, and seldom fails of affecting the bowels as a strong cathartic.

BLUE FLAG.—*Iris Pseudacorus*. The root.

Also called water flag, flower de luce, &c. This plant is perennial, and grows in great abundance in most parts of the United States, by the brinks of rivers, in bogs and low grounds. It blossoms in July; flowers blue, variegated with white, yellow, and purple; its leaves sword shaped. The roots grow in mats, and have an acrid taste.

This root possesses great medicinal power; and from a long experience of its use, I am convinced that it is equally as efficacious as mercury in all the diseases in which, in the common practice, it is supposed mercury is indicated. It serves as an alterative, and sialagogue, in small continued doses; as a powerful drastic purge, a stimulant, a vermifuge, a diuretic, errhine, &c. It is a complete substitute for the mineral, for any of its purposes; and being a vegetable, I consider it far preferable, because, after having its operation and effect, it passes off and leaves the system free; whereas mercury fastens upon the bones and solids, and remains, like a corroding and eating canker, rendering vast numbers feeble and debilitated for life. Such is the difference between these two articles of medicine; and it would be a happy event for mankind if physicians would, for once, divest themselves of their blind prejudices in favor of the mineral, and consent, at least, to make a trial of this vegetable substitute. Their humanity should be a sufficient inducement for this. The plea that the vegetable kingdom contains no equivalent to mercury, is no longer tenable; then why should not physicians discard the use of it at once, when it is universally acknowledged and felt, that in the aggregate it has proved a curse, a destroyer to the human race. The disuse of it, it is true, would lessen the employment of the medical profession; but the satisfaction they must feel at the proportionate decrease of suffering among their fellow-beings, will, no doubt, richly compensate them for the pecuniary sacrifice.

The root loses its virtue by age and long exposure.

My method of preparing the root is, immediately after it is dug and cleaned, to either bruise it and infuse it in spirits, for a tincture; or, after carefully cleansing it, and cutting out the dead and inert matter, to dry it quickly before a fire, pulverize it, and bottle it tight, for use. The tincture may be given alone, or combined with other articles, when it is employed as an alterative. For a cathartic, I generally make use of the powder, which may be given in the average dose of twenty grains, repeating if necessary. Its operation is powerful, certain and quick, sometimes taking effect in half an hour; and I have often seen it move the bowels when jalap, gamboge, and other strong purgatives had no effect. I have destroyed tape worms with this alone.

This root, in the hands of a physician of skill and judgment, can be employed to effect many valuable purposes; but it is not to be used incautiously, or trifled with.

BONESET, OR THOROUGHWORT.—*Eupatorium Perfoliatum*. The herb.

This useful plant rises to three feet in height, is hairy; the leaves long, rough, and grow to the stalk in pairs, four inches apart, and appear as if the stem grew through each leaf; flowers white, and blossoms in July and August. It grows by road sides, in meadows, and near brooks of water.

This plant is a valuable sudorific, tonic, alterative, antiseptic, cathartic, emetic, febrifuge, corroborant, diuretic, astringent, deobstruent, and stimulant. It was one of the most powerful remedies of the native tribes, for fevers, colds, &c. It has been introduced extensively into practice throughout the United States, and appears to be superior to camomile, as a sudorific tonic, and far preferable to barks, in the treatment of the local autumnal fevers of the country, near the streams, lakes, and marshes, often curing when other tonics failed. A strong decoction of boneset, taken warm, till it vomits freely, is sufficient to break up almost any fever in the commencement. It cleanses the stomach, excites all the secretions, relaxes constriction, produces a free perspiration, and of course throws off the disease. For colds it is a complete remedy; always observing to take a draught of the cold tea,

after the sweat is over, which will prevent an additional cold, on exposure. The cold preparations are powerful tonics, and do not produce vomiting, as an over-dose of the warm decoction. It acts powerfully on the skin and removes obstinate cutaneous diseases. It has cured the following disorders in many instances, viz: intermittent and remittent fevers, spotted fever, malignant pleurisy; diseases of general debility, dropsies, and debility arising from intemperance; acute and chronic rheumatism; catarrhs, bilious and typhus fever, particularly low typhus, incident to marshy places, and attended with a hot dry skin; influenza, lake fevers, and yellow fever itself; ringworms, scald head, gout and syphilitic pains, dyspepsia, and complaints of the stomach, and the bites of snakes.

Boneset may be so managed as to act as a tonic, a sudorific, a laxative or an emetic, as required. No other tonic of equal activity can be exhibited in fevers, with less danger of increasing excitement, or producing congestion; the only objection to its general use is its nauseous and disagreeable taste. But this difficulty is surmounted by preparing it in a syrup, or obtaining the extract, which preserves all its properties, and are less disagreeable to the palate. In substance or cold decoction, and combined with aromatics, it becomes very efficient in intermittent and dyspeptic disorders; it strengthens the viscera and restores the tone of the system. The doses of the powders are from ten to twenty, the decoction and infusion from one to three ounces. No unpleasant effects follow the cold preparations. It is particularly useful in indigestion of old people; and may be used as an auxiliary to other tonics and emetics in all cases.

BRIONY, OR WILD VINE.

The common white briony grows upon the hedges and fences, sending forth many large, rough, very tender branches at the beginning, with broad leaves cut into five partitions like a vine leaf, but smaller, rougher, and of a whitish or hoary color, spreading very wide. At the several joints rise long stalks bearing whitish flowers, together on a long tuft, consisting of five small leaves each, opening like a star; the berries, which are red when ripe, hang in clusters like grapes, have a strong scent, and loathsome taste, producing vomit. The roots lie deep, and are of a sharp, bitter taste. This plant is common in England, but I am uncertain of its existence in America.

The root of briony is a very drastic purge, and serves excellently well where such purging is required. It is also expectorant, diuretic, and emmenagogue. In smaller doses, as a drachm of the pulverized root; applied as a drawing poultice, it extracts extraneous substances from wounds, breaks boils, and relieves fellons.

BROOK-LIME, OR WATER PIMPERNEL. *Beccabunga*. The herb.

Brook-lime grows in small standing waters, and usually near water-cresses, and is found in most of the Eastern and Northern States. This sends forth, from a creeping root with strings at every joint as it runs, green stalks, round, deep, green, and thick leaves, set by couples; from which shoot forth long foot stalks, with small blue flowers on them.

The brook-lime may be used as a diet drink, like cresses. It is antiscorbutic, diuretic, febrifuge, and an excellent emmenagogue. The most beneficial effects are experienced from this herb, in relieving obstructed menses, and in expelling a dead fetus, when it should be taken in large quantities. In beginning fevers, and coughs, it is very useful, from its relaxing power.

BUCK-THORN. *Spina Cervina*. The juice of the berries.

This is a hedge prickly bush, or low tree, and grows common throughout the United States. The leaves are oval, pointed and serrated; flowers male

and female, upon different plants, small and in clusters, and produces a round black berry containing four seeds.

Buck-thorn berries have a faint disagreeable smell, and a nauseous bitter taste. They have long been in considerable esteem as cathartics; and celebrated in dropsies, rheumatism, and even gout; though in these cases they may have no particular advantage over other purgatives. Henry prepared it in the following manner, for the dropsy: steep one gallon of the expressed juice of the buck-thorn berries, in an earthen pot for an hour; then strain the liquor through a fine cloth, and add once ounce of ginger, one ounce of black pepper, and half an ounce of powder of masterwort root; to these add two quarts of molasses, and boil all down to two quarts, which should be put into close covered pots for use. Take a gill of this syrup at a dose, and work it off by drinking half a pint of thin gruel, after each stool, which will powerfully purge off the water without griping. As a common purge, the patient may take four table spoonsful, or two ounces, for a dose, and drink thin gruel as above.

The juice, or decoction, causes gripings and pain, and therefore the above syrup, made either with molasses or sugar, ameliorates it, and makes it a brisk and safe cathartic, which may be used as circumstances require.

The bark of the buck-thorn is said to be a mild tonic, astringent and antiseptic medicine and is recommended for the cure of intermittents. The decoction is of great service, reducing inveterate inflammations of the eye, curing the itch, and cleansing the skin.

BORAGE, OR BUGLOSS.—*Borago*. The leaves, flowers, and roots.

The properties of this plant are refrigerant and cordial, and the juice or a syrup of it may be used with great benefit in all putrid and pestilential fevers, to defend the heart and resist and expel the morbid matter. It is cooling, opening, and cleansing; is of great service in hypochondriacal complaints, and helps to bring milk into women's breasts. It may be used also in consumptions, jaundice, and in all cutaneous affections.

SWEET BUGLE.—*Lycopus Virginicus*. The herb.

This excellent astringent herb is gathered and put up by the Shakers, but I am unacquainted with its description. In decoction, and taken repeatedly, it checks internal hæmorrhages from the lungs and stomach, more effectually than any thing else I am acquainted with. I make frequent use of it. A small quantity is sufficient for use in a common case. For other purposes it is similar to other astringents.

BUCK HORN BRAKE. The shoots and roots.

This brake is common in swamps and low grounds, and may be known by its growing very large and in mats, from which an immense number of thick brittle shoots sprout up in the spring, curling round like a buck's horn, from whence its name.

The properties of this brake are mucilaginous, tonic, and strengthening. The root and shoots, in decoction, or compounded with other articles, forms a very strengthening syrup for female weaknesses, particularly the whites. The same is also an excellent remedy for the rickets in children; and while taking this, the child should be placed upon a bed of the brake tops, and allowed to sleep upon them constantly. By this means I have cured several ricketty children.

BURDOCK.—*Arctium Lappa*. The root, leaves, and seeds.

A well known plant growing on the road sides, or rubbish and ditch banks, bearing purplish blossoms in July and August.

Burdock promotes the sweat and urine, and is of a very cleansing, detergent quality. Where its use is known, it is esteemed superior to sarsaparilla in all diseases proceeding from bad blood. It may be safely used in fevers and other acute diseases, as a deobstruent, and sudorific, as it acts without irritation. The fresh root has a sweetish, bitter, and somewhat austere taste; the seeds have a bitterish, acrid taste, and are recommended as a powerful diuretic, taken either in the form of emulsion, or a powder, in doses not exceeding one drachm. Decoctions of the root have been employed with great success in rheumatism, gout, venereal, and other diseases; but it does not possess sufficient strength, of itself, to cure these disorders as rapidly as might be desired, and therefore would be more profitably combined with other alteratives, in the form of a syrup.

STRIPED BLOODWORT.—*Laphathum Sanguineum Rubrum*. The herb.

This plant rises six or seven inches in height. On the top of the stalk, which is small and bare of leaves, grow purple flowers, which turn into husks that contain the seed. The leaves lie flat upon the ground, are three or four in number, hairy, full of red winding veins, oval shaped, and remain through winter; roots small, tough, and fibrous. It grows in uplands throughout the United States.

The properties of this plant are antiseptic, voluntary, astringent, and pectoral. A decoction of it drank will speedily stop immoderate flowing of the menses, and other hæmorrhages. The powder of bloodwort, mixed with an equal quantity of bloodroot, and a little alum, and used as a snuff for polypos in the nose, frequently destroys it in the course of a week. The decoction of this root, made into a syrup, has been found very beneficial in consumptions accompanied with spitting of blood. The juice of the green leaves of bloodwort, boneset, and rattlesnake plantain, equal parts, and a gill drank at a dose is said to be an infallible cure for the bite of a rattlesnake, or any other poisonous reptile. The bruised leaves should also be applied to the wound and changed often.

BUTTON SNAKEROOT.—*Liatris Spicata*.

Also called, I believe, corn snakeroot. It grows plentifully in the prairies in the state of Ohio, and is also cultivated by the Shakers. It is called corn snakeroot, because its leaf, like young corn, has prickly points all along its edges, and a larger one at the extreme point of its leaf; it sends up a round stalk sometimes two feet high, with the leaves scattering along upon it; and on the top grows a ball as large as a musket bullet, covered thick with white bloom. The root consists of a knob an inch long, the bottom being the largest, and appears as if decayed or rotted off. There are small roots shooting from this knob. The taste of the root resembles the black snakeroot, but is not pungent, and infinitely stronger.

The virtues of this root are as yet but little known, and its use has extended but little farther than the cure of the bites of venomous reptiles, for which it is said to be infallible. The root need only be chewed and laid on the wound, and a little of it swallowed. If this can be done when the bite is first inflicted, it prevents the parts from swelling. It is generally, first or last, a speedy cure.

If this root possesses such power in stimulating the different secretions of the system to throw off the poison of reptiles, might it not prove equally ad-

vantageous in scrofulous and venereal affections; or in bilious fevers, and infectious diseases?

[This root has been used for venereal in form of syrup, with success, and combined with blue flag, it cures all kinds of dropsy.]

BURNET SAXIFRAGE.—*Pimpinella*. The root.

This plant grows in dry meadows and pastures, and is cultivated in gardens for family use. It rises about a foot high; leaves variously shaped, having many leaflets; the flowers stand upon terminal umbels; seeds naked, furrowed, and egg-shaped.

The root is found to be resolvent, diaphoretic, stomachic, diuretic, emmenagogue, and is beneficial in all asthmatic complaints, catarrhal coughs, and hoarseness. Chewing the root draws off the saliva, and gives relief in the tooth-ache. An ounce of the dry root, bruised, to a quart of hot water, is sufficiently strong; it may be sweetened. A gill of this may be taken twice a day, for obstructed menses.

BUTTERNUT.—*Juglans Cinerea*. The inner bark, and extract.

This tree is well known throughout the United States, and is very commonly used as a moderate, gentle cathartic. The extract of butternut bark is esteemed as a valuable purgative, in doses of from ten to thirty grains, as it does not occasion debility, heat, or irritation, and is greatly commended in cases of dysentery. Conjoined with some more active purgative, it is very efficacious in bilious habits. The bark of the root of this tree will excite a blister. A decoction of the inner bark is advantageously employed as a cathartic in the disease of horses, called *yellow water*.

BURGUNDY PITCH. The resin of common spruce fir.

This substance is obtained by exudation from incisions in the trunk of the tree. It is boiled with a small quantity of water; is strained, and when cold forms a concrete resinous matter. This, spread upon leather, and applied to the skin, excites a slight degree of inflammation, and exudation of serous fluid.

In obstinate coughs, affections of the lungs, the hip-gout, and many internal complaints, plasters of Burgundy pitch, by acting as a topical stimulus, are frequently found of great service.

CAJEPUT TREE.—*Melaleuca Leucadendron*. The volatile oil.

The tree which furnishes the cajeput oil is frequent in the East Indies. The essential oil, obtained from the leaves, has a green or yellowish color, a strong fragrant odor, and an extremely pungent taste. This oil has been used as a highly diffusible stimulant and antispasmodic, in tympanites, hysteria, palsy, chronic rheumatism, and various other diseases of debility. Its dose is three or four drops; care should be taken, however, that it be genuine, for very little is so that is commonly kept in the shops. It is also applied externally to relieve rheumatic and gouty pains, and violent headaches. But its most remarkable effect is in that painful complaint the tooth-ache. From whatever cause this affection may proceed, whether from a carious tooth, rheumatism, acrimony, catarrh, &c., the cajeput oil has generally been found efficacious in removing it, if dropped on lint, and placed beneath the cavity of the tooth, or even around the gum.

CAMOMILE.—*Anthemis Nobilis*. The leaves and flowers.

This useful plant is well known in this country, and is very generally used as a domestic medicine. Its qualities are similar to those of boneset, though not equal to it in power. Both the leaves and flowers have a strong, though not ungrateful smell, and a very bitter, nauseous taste; but the latter are the bitterest, and considerably more aromatic. They possess tonic and stomachic qualities, are much employed to restore the tone of the stomach and intestines, and as a pleasant and cheap bitter. They have been long successfully used for the cure of intermittents, as well as of fevers of the irregular nervous kind, accompanied with visceral obstructions. The flowers have been found useful in hysterical affections, flatulent or spasmodic colics, and dysentery. A simple infusion is frequently taken to excite vomiting, or for promoting the operation of emetics. Externally, they are used for fomentations, in cases of inflammations and acute diseases. The camomile decoction forms an excellent injection in cases of swelled and inflamed womb, or of bearing down, as I have found by long experience in the use of it.

CAMPBOR TREE.—*Laurus Camphora*. The gum.

The camphor laurel grows in great abundance, and to a very considerable size in the forests of Japan. Camphor is a proximate principle of vegetables, contained in many plants, especially those of the aromatic kind. The camphor gum commonly used is obtained from this tree, by sublimation.

Pure camphor is colorless, semi-transparent, tenacious, and somewhat oily to the touch; its smell is strong and fragrant; its taste pungent and bitter. It is volatile at every natural temperature, inflammable, scarcely soluble in water, but entirely soluble in alcohol, ether and oils.

In moderate doses, camphor produces effects similar to those of other narcotics. Its stimulant operation, however, is not considerable, even in a small dose; and in a large dose it always diminishes the force of the circulation; induces sleep, and sometimes causes delirium, vertigo, and convulsions, ending in total insensibility. These violent effects of camphor are most effectually counteracted by opium. In a morbid state of the body camphor allays inordinate actions. When the pulse is hard and contracted, it renders it fuller and softer. It removes spasms and flitting pains; and in delirium, when opium fails of producing sleep, camphor will often succeed.

The most general indication for the use of camphor is the languor or oppression of the vital principle of life. It may therefore be given with advantage in all febrile diseases of the typhoid kind, especially when attended with delirium; in inflammations of the lungs; in rheumatism; in eruptive diseases to favor the eruption, or to bring it back to the skin, when it has receded, as in small pox, measles, &c.; in many spasmodic diseases, especially mania, melancholy, epilepsy, hysteria, St. Vitus' dance, hiccup, &c.; in indolent local inflammation, to excite action in the part.

The dose of camphor is from five to twenty grains. It cannot be given with safety in a larger dose than half a drachm; and in too small a dose, as that of a few grains, it has very little effect. In divided doses it may be given to the extent of a drachm a day. Combined with opium, it forms a powerful diaphoretic. Camphor ought generally to be given in a state of mixture in some fluid form, as being then less apt to excite nausea. It may be diffused in water by trituration with sugar or mucilage.

Externally applied, camphor is used as an anodyne in rheumatism and muscular pains, and as a discutient in bruises and inflammatory affections; it is dissolved in alcohol, or expressed oil, and applied to the part by friction.

CARAWAY.—*Carum Carui*. The seeds.

This plant is cultivated in our gardens, both for medicinal and culinary purposes. On account of their aromatic smell, and warm pungent taste, the seeds of caraway may be classed among the finest stomachics and carminatives of our climate. To persons afflicted with flatulency, and liable to colics, if administered in proper quantities, they generally afford considerable relief, and may sometimes be used with advantage in agues. They give an agreeable flavor to more powerful tonics and stimulants, and may, therefore, be combined with them advantageously.

CAROLINA PINK.—*Spigelia Marilandica*. The root.

This plant is perennial, and grows wild in most of our Southern States. The roots are celebrated as an anthelmintic, particularly for the expulsion of the round worm of the intestines. It is commonly administered in the form of infusion; an emetic is generally premised, and its purgative effect assisted by some simple addition, as senna or jalap. By some the powdered root is directed in doses of ten or fifteen grains; while others prescribe it in drachm doses. But it should be observed that, when exhibited in large doses and without proper precautions, it sometimes produces very singular and distressing effects upon the nervous system, such as vertigo, pains over the eyes, and dilated pupils. As a vermifuge, pink has acquired general use, and often gives relief, even where no worms are discharged; but its good effects are often lost for want of a stomachic and tonic after-treatment, which shall prevent a new generation of worms.

WILD CARROT.—*Daucus Carota*. The seeds.

The seeds of wild carrot have a moderately warm and pungent taste, and an agreeable aromatic smell. They are carminative, and are said to be diuretic.

The roots of the cultivated variety, or common carrot, contain much mucilaginous and saccharine matter. When beaten to a pulp they form an excellent application to cancerous and other ill-conditioned ulcers, allaying pain, checking the fœtid smell, and softening the edges.

CINNAMON. The bark and oil.

The inner bark of the cinnamon tree, which is a native of Ceylon in the East Indies, although it is now cultivated in the West Indies. This bark is a very useful and elegant aromatic, more grateful to the stomach and palate than most other substances of this class. Like other aromatics, the effects of cinnamon are stimulating, heating, stomachic, carminative, and tonic; but it is rather used as an adjunct to other remedies, than as a remedy itself.

The essential oil of cinnamon is one of the most powerful stimulants we possess, and is sometimes used as a cordial in cramps of the stomach and fainting; or as a stimulant in paralysis of the tongue, or to deaden the nerve in tooth-ache. But it is principally used as an aromatic to cover the less agreeable taste of other drugs.

CASSIA. The bark and flower buds.

This tree is very similar to the former; and the bark has a very exact resemblance to the cinnamon. It is distinguished from the cinnamon by be-

ing of a thicker and coarse texture, and by its breaking short and smooth, while the cinnamon breaks fibrous and shivery.

Both the bark and buds of cassia possess the same properties with cinnamon, though in an inferior degree; and the former is often substituted for the latter.

CASCARILLA.—*Croton Eleutheria*. The bark.

This bark is imported from the Bahama Islands, and comes in the form of curled pieces, or rolled up in short quills about an inch in width, externally resembling the Peruvian bark. It has an agreeable smell, and a bitterish, pungent, aromatic taste.

The cascarilla is frequently and successfully administered in intermittent fevers, as a substitute for the cinchona. According to medical writers, it has been employed with uncommon advantage in dangerous epidemic and petechial, or eruptive fevers, in flatulent colics, internal hæmorrhages, dysentery and diarrhœa. The virtues of cascarilla are partially extracted by water, and wholly by rectified spirits, though it is more efficacious given in powder, from ten to thirty grains every four, six, or eight hours.

CASTOR OIL. From the *Palma Christi* tree.

The palma christi is a native of the West Indies, and flourishes extremely well in most parts of the United States, particularly in the South. The seeds are about the size of small beans, which, in their brittle shells, contain white kernels, of a sweet, oily, but somewhat nauseous taste. The skin is extremely acrid, and one or two of the seeds swallowed entire, operate as a drastic purgative or emetic.

The kernels yield almost a fourth part of their weight of a bland fixed oil, commonly called castor oil. It is obtained from them either by expression or decoction with water. The former method is practised in Europe; the latter in Jamaica. To increase the product, it is common to parch the seeds over the fire, before the oil is extracted from them; but the oil thus obtained is greatly inferior to that prepared by cold expression, or simple decoction, and is apt to become rancid. The most eligible method is, to shell the seeds and boil them in water; and as the oil rises, skim it off. This oil is sweet, without bad taste or smell, and as clear as olive oil; and may be kept much longer than that obtained by expression, because the water detains the mucilage, which abounds in the expressed oil, and disposes it sooner to become rancid, and unfit for internal use. Genuine castor oil is thick and viscid, of a whitish color, insipid and sweetish to the taste, and without smell.

Castor oil is a gentle and useful purgative; it in general produces its effects without griping, and may be given with safety where acrid purgatives are improper, as in colic, calculus, gonorrhœa, &c. It is also a vernifuge, and a most efficacious remedy for the dry bellyache and iliac passion, when administered in proper doses, to children and adults; viz.: the dose for the former, from one to two tea spoonsful; and the latter, a table spoonful, repeated every two or three hours. As patients in general have a great aversion to this oil in its pure state, it may be taken swimming either in a glass of peppermint, or simple water, or in form of an emulsion, with mucilage, or with the addition of a small quantity of rum.

CAYENNE PEPPER.—*Capsicum Annum*. The fruit.

This species of pepper is a native of South America, and is cultivated extensively in the West India islands. The pods are long, pointed, and pendulous, at first of a green color, and afterwards of a bright orange red. The

taste of capsicum is extremely pungent and acrimonious ; setting the mouth, as it were, on fire. Its pungency is completely extracted by alcohol, and partly by water.

Cayenne pepper is an indiscriminate mixture of the powder of the dried pods of many species of capsicum. These peppers have been chiefly used as condiment. They prevent flatulency from vegetable food, and have a warm and kindly effect upon the stomach. Of late they have been employed also in the practice of medicine. There can be little doubt but they furnish us with one of the purest and strongest stimulants, that can be introduced into the stomach ; while, at the same time, they leave nothing of the narcotic effects of ardent spirits. It may be given to the extent of six or eight grains, in form of pills ; or, it may be combined with myrrh, in proportion of two ounces of the pepper to a pound of the latter, and infused in alcohol, of which a tea spoonful may be taken at a dose. It is an admirable remedy for all painful affections of the stomach arising from flatulency, coldness, phlegm, and debility. In dropsical and other complaints, where chalybeates are indicated, a minute portion of powdered cayenne forms an excellent addition, and also in lethargic and paralytic affections.

Cayenne pepper is extensively used in the Thompsonian practice, for restoring heat to cold and debilitated systems, and as a preparatory to the lobelia emetic. For this last purpose, a tea spoonful of the pepper is taken in tea or powder a few minutes previous to the emetic being given.

In fevers, attended with delirium, or sleepishness, cataplasms of cayenne pepper have a happy effect. In rheumatism a strong tincture of it applied to the pained parts, with friction, give relief almost invariably.

CATNIP.—*Nepeta Cataria*.

This useful and common herb is well known, and its virtues pretty generally understood, although many consider it too simple to deserve much attention. However, it is well for physicians that catnip is slighted, for if it were used in all cases where it might be with advantage, their services would be less frequently required.

Catnip is an elegant warm cordial aromatic ; and in infusion promotes perspiration.

CAT-TAIL FLAG.—*Iris Palustris*. The root.

The root of this flag, bruised till it becomes like jelly, forms an excellent application for burns, and is cooling and useful in all species of inflammations.

RED CEDAR.—*Juniperus Virginiana*. The apples and distilled oil.

The red cedar tree is a native of the United States, grows plentifully in New-Jersey, and other states, and from ten to twenty feet high. It produces berries, and also apples, which should be gathered in March. The apples are highly recommended for destroying worms ; they may be given to children in doses of from five to twenty grains, and repeated three or four times in the course of a day. The oil obtained from the cedar wood, by burning it in a smothered pit, in the manner that tar is manufactured, is a noble remedy for rheumatism, applied externally. I have known a man, who had suffered severely with the chronic rheumatism for many years, entirely cured by five or six applications of this oil to the part.

CELANDINE THE GREATER.—*Chelidonium Major*. The leaves.

This plant grows in meadows and by running brooks; rises two or three feet in height; has many tender, round, green, watery stalks, with large joints, very brittle and transparent; leaves large, serrated, and very tender; the flowers, consisting of four leaves, are yellow, after which come long pods, which when compressed by the fingers, fly into pieces instantly.

The properties of this plant are, acrid, stimulant, aperient, detergent, diuretic and sudorific. The juice rubbed on warts extirpates them, cures ring worms, and cleanses old ulcers. It has been found beneficial in dropsy, vitiated habit, and green sickness. A poultice made of this plant boiled in milk has cured the tetters. Infused in vinegar it promotes perspiration. The herb boiled in white wine, and aromatics added, and drank, is excellent in jaundice, and removes visceral obstructions, particularly of the liver.

It is also used for taking films off the eyes; for this purpose take half a gill of the expressed juice of the leaves of celandine, and one gill of the fresh juice of the leaves of ground ivy: dissolve a tea spoonful of salt in it, and keep it in sand in a cellar for use. The film must be wet with a small hair brush dipped in this juice, three times a day, and afterwards wash the eye with a little warm milk and water. Also, in the cure of the above complaint, the patient may take twenty or thirty drops every morning and evening of the expressed juice of this plant, in a gill of milk; or half a tea spoonful of the powder of the root in milk, twice a day, increasing the dose occasionally. Twenty drops of the juice, mixed in an ounce of rose water, makes an excellent eye water, which will cure the most inveterate sore eyes, by wetting them morning and evening. A poultice made of roasted roots washed in vinegar, and applied to scrofulous tumors on the neck, quickly disperses them. An ointment made of the roots boiled in hog's lard is good for the piles.

CENTUARY.—*Centaurium Minor*. The leaves and flowers.

This useful plant rises about ten inches in height; stalks erect; leaves opposite, sessile, oblong, and obtuse; flowers terminal, in bunches, of a pink red color. It grows wild in barren pastures, in most parts of the United States, and flowers in June and July.

Centuary is justly esteemed one of the most efficacious bitters indigenous to the United States, and is a good substitute for the English gentian, which it resembles in taste. It is a good stomachic, emmenagogue, febrifuge, and vermifuge.

Two ounces of the flowers and leaves of centuary, and one ounce of orange peel, may be infused in two quarts of brandy for two weeks. One table spoonful of this tincture taken before breakfast and dinner, will create an appetite; and children having worms may take two tea spoonsful or more, every morning, which will effectually destroy them. In the cure, and to prevent intermittent fevers, a wine glass full, with twenty drops of elixir vitriol in it, may be taken twice a day on an empty stomach. In fevers, a tea made of two ounces of the flowery tops of centuary, and a handful of balm, in two quarts of rain water, may be drank five or six times a day. In order to bring down the menses, pour two quarts of water on two ounces of tops, and steep for half an hour; then strain, and add a pint of rum. Dose, a tea cupful four times a day, together with fomentations, &c.

WILD CHERRY.—*Prunus Virginiana*. The bark, both of the tree and root.

This tree is commonly found in woods and hedges, and bears small black cherries. Its fruit is often infused in brandy, on account of its pleasant aro-

matic flavor. The leaves are poisonous to certain animals, and even the berries, intoxicate different kinds of birds. The Indians use the bark in the cure of syphilis.

The bark of the wild cherry tree is powerfully tonic, and has been frequently substituted for the Peruvian bark with great success. It is slightly narcotic, contains a considerable proportion of the prussic acid, and commonly produces drowsiness in those who take it. The bark of the root is more powerful than that of the trunk. It has been found useful in dyspepsia and in diseases of the lungs. A strong decoction of the bark is anthelmintic. Very excellent effects have been produced by washing ill conditioned ulcers, with a decoction of the bark. The bark of the root, in form of tea or tincture, is good in jaundice, in agues, and intermittent and bilious fevers, and for female obstructions.

HEMLOCK—*Cicuta*.—*Conium Maculatum*. The leaves and seeds.

There are two species, or varieties of this poisonous plant, which are usually compounded together. The first is the hemlock, or true cicuta, known also by the names of snakeweed, death of man, water parsley, poison root, wild hemlock, children's bane, &c. The other, *conium maculatum*, is commonly known by the names of poison parsley, and spotted parsley; and may be distinguished from the true cicuta by its strong smell, similar to cats' urine, and by its spotted stems and parsley leaves. This species is less actively poisonous than the cicuta, though in warm climates, its strength is much greater; and this constitutes the principal difference in the species, for its properties are similar.

The cicuta grows in wet meadows, pastures and ditches; near streams and swamps, from New-England to Georgia and Ohio. The root perennial, white, long, of the thickness of the finger, contains when it is young a milky juice, and resembles in form the common carrot. In the spring it is very poisonous, in harvest less so. The stalk is from three to six feet high, hollow, jointed, purple or green, smooth and branched. Leaves smooth, alternate, with petioles clasping at the base. Flowers white, in terminal umbels.

Children searching for angelica root, sweet flag, sweet cicely, (which have all a pleasant aromatic taste,) have eaten this root by mistake, and some have died in an hour's time. The effects of this poison were, violent convulsions, a frothing mouth, bleeding nose, dilated pupils, fixed eyes, &c. When vomiting was naturally produced they were saved, after being very sick for two or three days, with paleness, stupor, &c. Persons poisoned in this way ought, therefore, to evacuate the stomach immediately, by tickling the throat, or taking an emetic. Vinegar, or lemon juice, may also be given to neutralize the narcotic poison, and afterwards mild purgatives.

Cicuta is resolvent, discutient, narcotic, sedative, and anodyne. It is beneficial in dispersing indolent hard tumors, by giving the powder or extract internally, and applying it externally. It may be given with perfect safety in small doses, beginning by giving the patient, twice a day, two grains of the fine powdered leaves, or the extract, and increasing a grain a day to the quantity which the patient can bear.

The internal use of cicuta was introduced by Dr. Stork, who recommended it particularly in scirrhus and cancerous sores, in which it received a very extensive trial. While its efficacy towards effecting a radical cure is established, its utility as a palliative medicine is generally admitted. It has likewise been found serviceable in scrofulous and venereal ulcerations, cutaneous affections, glandular tumors, chronic rheumatism, and various other diseases. In open cancer it often abates the pains, and is free from the constipating effects of opium. It requires to be persisted in for a long time,

and till a complete change is effected in the system, to effectually cure these complaints.

The dose of cicuta requires to be increased, in general, to a very considerable extent; at the same time this must be done with caution, as both the dried leaves and extract are variable in their strength. In some cases the leaves have been increased to two ounces a day, without producing giddiness.

To discuss hard, indolent, or scirrhus tumors, a plaster of the extract, or a poultice of the leaves, may be applied over it continually, at the same time giving it internally.

Cicuta has been found remarkably successful as a remedy in jaundice occasioned by spasmodic contraction of the biliary ducts. Its antispasmodic powers are also considerable.

The dried leaves are less liable to injury from keeping, than the extract, or inspissated juice. The leaves should be collected in the month of June, when the plant is in flower, and its peculiar smell strong. The drying of the leaves should be performed quickly, before a fire on tin plates, and the powder should be kept in vials, closely stopped and secluded from the light, for this soon dissipates the green color, and with it the virtues of the medicine. The extract should be kept in close covered pots.

CLEAVERS, OR GOOSEGRASS.—*Gallium Aperine*. The herb.

This vine-like grass grows in hedges, on low grounds, in meadows, and near brooks. It rises from four to six feet in height, climbing round the bushes near it. The leaves are eight in a whorl, lance-like, and the upper side whitish, with sharp prickles: stem square, the angles being guarded with sharp prickles bent down; flowers small, inconspicuous, and divided into four segments; these change into a fruit, rather large, composed of two berries slightly adhering together, and covered with hooded prickles containing two seeds.

Cleavers is one of the most valuable diuretics that our country produces. I have found it an excellent and speedy medicine in all suppressions of the urine and gravelly complaints, and a powerful discutient.

It has also been found useful in the cure of scurvy and spitting of blood. The expressed juice of this plant, mixed with oatmeal to the consistence of a poultice, and applied cold over an indolent tumor, three times a day, keeping the bowels open in the mean time by castor oil, and taking a table spoonful of the juice every morning, will often disperse it in a few days.

Infusions of this herb should always be made in cold water, heat destroying its virtues. Three or four ounces of the dried herb to a quart of water is sufficient; this should be drank for common drink. It is an admirable remedy in gravelly disorders, often alone curing them. It seems to possess a solvent power over the stone, or gravel, crumbling it into a sandy substance, so that it is discharged without difficulty. When urinary obstructions proceed from a collection of cold, slimy, or muddy substance in the kidneys or bladder, this effectually clears it out, in all cases. In inflammatory affections of the kidneys or bladder, the cleavers infusion is peculiarly applicable, from its cooling as well as diuretic quality. It gives great relief in the scalding of the clap.

The cold nature of cleavers, however, renders its employment in dropsies and other diseases of cold and debility, improper.

CLOVES. The flower bud and oil.

Cloves are among the most stimulating aromatics, and are supposed to possess considerable power in exciting venereal desire. The dose is from

five to ten grains. They are employed principally as adjuncts to other medicines. The essential oil is used with the same intention, and likewise as a local application in the tooth-ache. The pure oil of cloves is not very pungent: that commonly met with being rendered acrid by certain additions.

SWEET CICELY.—*Myrrhis*. The root.

This plant rises from two to three feet in height; leaves small, numerous, and on long stalks; flowers small and of a pale white color. It grows plentifully on the sides of low meadows, on the banks of running streams, and on the borders of low woodlands.

The root of the plant is both carminative and expectorant, and may be taken in all cold, flatulent, and windy complaints of the bowels. It may be pulverized, and taken in doses of half a tea spoonful, in a little brandy, for windy complaints; or combined with other appropriate medicines for coughs.

BLUE COHUSH.—*Caulophyllum Thalictroides*. The root.

Also called blueberry, pappoose root, squaw root, blue ginseng, &c. It grows from two to four feet high. The root yellow inside, brown outside, hard, irregular, knobby, branched, with many fibres. Stem upright, straight, smooth, dividing at top into three branches, each of which has three leaves, and in the centre of which comes out the flower stem; leaves smooth, lobed, somewhat in shape like the hand. The flowers are of a yellowish green, producing a stone berry, of a dark blue color, something like sour grapes. It is perennial, growing all over the United States; and is generally found in low, moist, rich grounds, near running streams, in swamps, and on islands that have been overflowed with water.

The root of this plant is demulcent, antispasmodic, stimulant, emmenagogue, and sudorific. It is prepared by infusion and tincture. Cohush is used by the Indians, and by many botanists for rheumatism, dropsy, colic, sore throat, cramps, hiccup, epilepsy, hysterics, inflammation of the womb, &c. It appears to be particularly suitable for female diseases, and Peter Smith asserts, that the Indian women owe the facility of their parturition to a constant use of a tea of the root for two or three weeks before their time. This may be the case with the females of some of the tribes, but with others I know that the squaw berry vine, partridge berry, or winter clover, as it is called, is used for that purpose, and most successfully too. As a powerful emmenagogue, cohush promotes delivery, menstruation, and dropsical discharges, and is serviceable in venereal complaints. It has been found efficacious in the cure of yellow fever.

For rheumatic complaints, two ounces of this root and one ounce of blood root, bruised and infused in three pints of rum, may be used; a wine glassful three times a day for a dose. For the dropsy, pour two quarts of boiling water on one large root, bruised, of which a tea cupful may be taken four times a day.

There are four species of the cohush, viz., the one above mentioned, the red, black, and white, all of which, except the black, are known by the color of their berries. Their qualities, however, are similar.

The White Cohush grows about two feet high, dividing itself into long branches towards the tops, producing pointed leaves, cut in the edges with sharp notches. From the centre grows a stem producing white berries. Its quality is opening and stimulating: good in colic, &c.

The Red Cohush very much resembles the white, except the berries. The root is cleansing and strengthening: good in female obstructions.

The Black Cohush has a stalk from four to six feet high, producing white

flowers, succeeded by shells which contain the seed. The root is exceedingly black, and irregularly shaped, with many prongs, or fibres. It is a powerful stimulant: good in rheumatism.

COLOMBO. The root.

This valuable root was formerly imported altogether, but of late years it has been found in great quantities in the States west, north, and south of the Alleghany Mountains, but very little east of them. The native Colombo is equal in all respects to the foreign, except, perhaps, it is not generally quite as strong. It is found in great abundance in the rich glades of the Western States, where it grows most luxuriantly, sometimes attaining the height of ten feet.

The American Colombo is one of the handsomest native plants, having a large pyramid of crowded flowers, sometimes three or four feet long. It is a true triennial, and the stalk and flowers not shooting up till the third year. The root is large, yellow, tuberosc, hard, horizontal, spindle-shaped, two feet long sometimes, with few fibres. The whole plant perfectly smooth, stem from five to ten feet high, round, erect, solid, with few branches, except at the top, where they form a pyramid of flowers. Leaves in whorls, the radical, or root leaves form a star spread upon the ground, from five to twelve in number, from ten to eighteen inches long, and from three to five broad, constituting the whole plant in the first two years, or before the stem grows. The stem leaves are whorls, from four to eight, smaller than the radical leaves. Flowers yellowish white, numerous, large, forming an elegant pyramid. Its seed grows in pods, shaped like a horse bean, and are much like parsnip seeds. The root has a sweetish bitter taste, like gentian. The leaves are also bitter.

Colombo root is emetic and cathartic when fresh; tonic, antiseptic, and febrifuge when dry. It yields its bitterness to water, but proof spirits is its proper menstruum. The doses are two drachms of the powder, or one or two ounces of the infusion. The root should be collected from the fall of the second year to the spring of the third year of its growth.

This root is a powerful antiseptic and bitter, and is used with great success in diseases of the stomach and debility. It has cured a wide spread gangrene of the lower limbs by internal use and external application, when bark failed. It avails in intermittents, like other pure bitters, and is extensively used in the Western States, in fevers, colics, griping, nausea, relaxed stomach and bowels, indigestion, &c. As a purgative, it is substituted for rhubarb in many cases, particularly for children and pregnant women, being found serviceable in the constipation of pregnancy. It has the advantage of not heating the body. Cold water is said to add to its efficacy, and prevent nausea or vomiting. A tea spoonful of the powder in hot water and sugar, will give immediate relief in case of heavy food loading a weak stomach. It is a good corrector of the bile, alone or united with other bitters. It is advantageously employed in consumptions, dyspepsia, jaundice, scurvy, suppressed menses, &c.

The Colombo leaves occasion sweat copiously when laid on the forehead, and will commonly relieve the head-ache; this will also apply to any kind of inflammation, rheumatism, &c. To finish the cure of fevers, it should be taken in some form, until the health is confirmed. Such is the efficacy of this root, says Peter Smith, that when they who take it recover, they are indeed well at once, needing no other medicine. Bitters made of this root are proper to confirm health.

COLT'S FOOT.—*Tussilago Farfara*. The leaves and flowers.

This grows on high, moist, clay ground, producing yellow flowers in February and March; these soon fall off and are succeeded by large roundish leaves close to the ground, hairy underneath, and standing on long radical foot stalks. The flower stem grows eight inches high, and is covered with small pointed purple leaves, like scales. Their taste is herbaceous, somewhat glutinous, and subacid. The root is long and slender, somewhat greenish, running in different directions, brittle, pungent, and aromatic.

The juice or decoction of the dried leaves has been found efficacious in the scrofula. The leaves powdered fine and a small pinch taken at bed time, removes the giddiness, and all other obstructions of the head and nose. It is a good medicine in coughs, asthmatic complaints, pain in the chest, and promotes expectoration.

A decoction may be made in proportion of one pound of the dried roots and leaves, boiled to three quarts; and in king's evil, half a pint of this may be taken three times a day. For a consumptive cough, a gill of this decoction may be taken four times a day.

COMFREY.—*Symphytum Officinalis*. The root.

This well known and useful plant rises about two feet in height: leaves very large, similar to water dock; roots long, thick as a man's thumb, very mucilaginous, and are black externally, and white within; flowers of a pale blue color. It grows in moist meadows, near springs, and is planted in gardens for family use.

Their roots are demulcent, and mucilaginous, similar to marsh-mallows. They correct salt sharp serum and acidity of the humors. Boiled in wine or water, or in a syrup, it heals internal injuries and soreness, erosions of the intestines from diarrhœa, dysentery, &c., and prevents the spitting of blood. It is very beneficial in pulmonary affections, and coughs, promoting expectoration. It forms a good adjunct in many medicinal preparations. The root fresh bruised is a good application for bruises, ruptures, fresh wounds, sore breasts, ulcers, the gout, &c. Comfrey is an ingredient in the female syrup, mentioned among the recipes.

COLT TAIL, OR FIRE WEED.—*Erigeron Canadense*.

Colt tail, taken freely in tea, is good in dysentery, bleeding piles, fluxes, &c. The powdered leaves, applied to wounds, stops their bleeding: taken as snuff, it stops the nose bleed. It is very styptic and astringent.

COMMON COW PARSNIP.—*Heracleum Sphondylium*. The root.

This article was brought into notice by the late Dr. Orne, of Salem. It grows in hedges; the stalk is large and tubular, invested with a down, which also covers the leaves, that are large and jagged, five on each stalk, and of the color of wormwood; it is umbelliferous, and flowers in June; the root is divided into several long fibrous branches, resembling the larger parsley root; and the height of the plant in its maturity, may be from two to four feet. The root has a rank strong smell, and a pungent and almost caustic taste; it should be carefully distinguished from the common parsnip, that grows wild in gardens and hedges; and indeed it has a very different appearance.

The particular disease in which Dr. Orne recommends the cow parsnip, is that of epilepsy, especially when it proceeds from, or is accompanied by

flatulency. He commonly prescribed two or three drachms of the pulverized root, to be taken every day for a great length of time, and a strong infusion of the leaves and tops, to be taken at bed time.

In the hands of other practitioners this plant has manifested considerable efficacy, acting immediately on the stomach, as an excellent carminative; and if it does not cure epilepsy, it generally mitigates the distressing symptoms attending that disease. In some cases of dyspepsia, accompanied with flatulencies and heartburn, a strong decoction of the plant has been given with satisfactory success.

COWHAGE.—*Dolichus Pruriens*. The stiff hairs which cover the pods.

Cowhage is a native of the West Indies. The stem is climbing, and twists around neighbouring trees, and rises to a great height; leaves triple; flowers also triple, very large, and of a deep purple color. The fruit is an oblong pod, in the shape of the italic letter *S*, the outside of which is thickly set with stiff brown hairs, which, when applied to the skin, occasions most intolerable itching. The ripe pods are dipped in molasses or thick syrup, which is again scraped off with a knife. When the syrup is rendered by the hairs as thick as honey, it is fit for use. It acts mechanically as a vermifuge, occasioning no uneasiness in the first passages, which are defended by mucus, and may be safely taken from a tea spoon to a table spoonful, in the morning, fasting. The worms are said to appear with the second or third dose, and by means of a purge, in some cases, the stools have consisted entirely of worms.

A decoction of the roots of cowhage is esteemed a powerful diuretic, and a vinous infusion of the pods, twelve to a quart, is said to be a certain remedy for the dropsy. The dose is half a pint when made into beer.

CRANE'S BILL, OR CROW FOOT.—*Geranium Maculatum*. The root.

This plant is perennial, grows in low meadows, throughout the United States; has long slender stalks, from one to three feet high, with seven long narrow leaves, or segments at a joint; flowers single, on long stems like a crane's bill, springing from the wings of the leaves. The root is crooked, knotty, and of a blackish color on the outside, and reddish within. It has an austere styptic taste, accompanied with a very slight kind of aromatic flavor.

This root has long been held in great estimation by botanic physicians, as a very powerful astringent. As it contains but little resin, it is more particularly adapted to cases where heating and stimulating medicines are less proper, as in phthisical diarrhœas, dysentery, &c. It is a better tonic than kino, and therefore preferable to it in the treatment of morbid fluxes, connected with relaxation and debility. It is extensively used in the country for all bowel complaints; but sometimes improperly exhibited too early. A decoction in milk is very good in looseness of the bowels and diarrhœa. A gargle of the decoction is useful in sore throat, and ulcerations or aphthous sores of the mouth and throat. The infusion is a valuable lotion in unhealthy ulcers, and passive hæmorrhages, and also one of the injections in gleet and whites.

Our Indians value this plant highly, and use it for wounds, gonorrhœa, ulcers on the legs, diabetes, bloody urine, involuntary discharges of urine, menses, &c.

The doses are one to two ounces in infusion or decoction, two to four drachms in tincture, fifteen to forty grains of the powder, and ten to fifteen grains of the extract, which is a most powerful and efficient astringent.

Joined with gentian, it cures intermitting fevers more effectually than Peruvian bark.

WATER-CRESSES.

Grow plentifully in brooks and stagnant waters; have many weak, hollow, sappy stalks, shooting out fibres at the joints, and long winged leaves, of a brownish color. Its flowers are numerous and white, standing on long foot-stalks, and the seed is contained in long pods, like horns. The whole plant is green in winter, and tastes hot and sharp.

Water-cresses are valuable for their anti-scorbutic qualities. It is powerful against the scurvy, and to cleanse the blood and humors: it is also considerably diuretic and emmenagogue. A decoction of it is a cleansing wash for ulcers. They are a good remedy in the spring to cleanse the blood of gross humors, and enliven the spirits. They may be eaten as salad, or as greens, or pottage.

SCIATICA CRESSES.

This rises with a round stalk about two feet high, spread into branches; the flowers are white and small, growing at the tops of the branches, afterwards producing husks, with small brownish seeds, of a very strong and sharp taste. The root is long, white, and woody. Grows by road sides, by walls, and in untilled places.

A salve made of the fresh plant, beat up with lard, and applied to the sciatic hip, is said to cure it. It should be continued on four hours, and the place afterwards bathed with wine and oil, mixed, and then wrapped in wool or skins after they have sweat a little. This is also said to be equally efficacious in other gouty affections of the joints.

MEADOW CROWFOOT.—*Ranunculus Pratensis*. The tops.

This species of crowfoot has many dark green furzy leaves, resembling a crow's foot, or a frog's foot, in taste, biting and sharp, blistering the tongue; it bears many flowers of a bright resplendent yellow color, after which small beads of seeds appear, round and ragged, like a pine apple.

An ointment of the leaves or flowers has been used for the purposes of blistering, and are said to have the advantage of cantharides in producing a quicker effect and never causing strangury. The use of it seems to be particularly applicable to fixed pains, and such complaints as require a long continued topical stimulus or discharge from the part, in the way of an issue, and in various cases has been found to be a powerful remedy.

CRAWLEY, DRAGON'S CLAW, or FEVER ROOT.

The root of this invaluable plant, pulverized, composes the Fever Powders, so often recommended throughout this work. It is newly discovered and known only to few botanists in the United States. It does not grow very plentifully, as far as has yet been discovered, though it is found in Connecticut, near Westchester county, on the sides of hills about Albany, and the western part of this State. It grows in beds or patches, rises six or seven inches high; the leaves grow in a cluster from the top of the root; blossoms yellow; a small black root, resembling cloves, or a hen's claw, as it is sometimes called, very tender, and has a strong smell, similar to nitre.

It is a powerful febrifuge, and an agreeable anodyne; and I have found it a sure and quick medicine in exciting perspiration, without increasing the heat of the body. The root is effectual in all remittent, typhus, nervous,

and inflammatory fevers; and will relieve cramps, constrictions, and all pains caused by cold, &c. It produces a general relaxation of the system, equalizes the circulation, and brings a moisture on the surface.

I verily believe that this root, properly administered, with such other medicines as may be necessary, will break up any fever in the space of two or three days, not excepting continued, typhus, or yellow fever; and that death, from any species of fever, would be rarely known.

Pulverize the root fine, sift it, and put it in bottles, well stopped from air. After proper evacuations of the stomach and bowels, a small tea spoonful of this powder may be given every twenty minutes, in a little pennyroyal or other herb teas, till a gentle breathing moisture appears on the skin, or till from four to six are taken, which has never failed, in my practice, of answering the purpose. It gives most agreeable relief from the pain and anxiety usual in acute fevers. With these powders I have often given quick relief from the excruciating pain of a supposed attack of the liver complaint; which, however, was caused by wind pent up in the bowels. It is an excellent medicine in pleurisy, and inflammations of the chest and brain, and is a sure remedy in erysipelatous fevers.

CUBEBS.—*Cubebæ*. The fruit.

This is a warm, aromatic, balsamic spice, imported from the East Indies. It is considerably used in the cure of gonorrhœa, and will sometimes succeed in checking it, in slight cases, when copaiva, &c., fails, though it is not to be depended on. It may be chewed, or pulverized and taken in milk.

CULVER'S ROOT.—*Callistachia Virginica*. The root.

This plant rises two or three feet high; has large leaves coming out at the joint, from four to seven in number, according to its age; a white tasseled blossom grows on the top of each branch, frequently as long as the finger. From a common stool proceed a number of pale yellow roots, about as large as knitting needles, and taste very bitter. A large handful of the roots made into a decoction, is sufficient for a common dose.

This root is an excellent cathartic, particularly in pleurisy; it possesses considerable narcotic property, and sometimes it is necessary to rouse the patient to keep him from falling asleep during its operation. It may be pulverized generally for a purge.

CROSSWORT.—*Crucata*. The herb.

Grows two feet high; leaves lance shaped, and are opposite each other in the form of a cross; flowers very conspicuous and yellow. It is found plentifully in old upland pastures, and is called by the country people yellow balsam, as they have experienced its good effects in curing colds and coughs.

A tea of this herb is an excellent expectorant, and very beneficial in relieving coughs and creating an appetite.

DANDELION.—*Leontodon Taraxacum*. The root and leaves.

A well known, indigenous, perennial plant, growing in meadows and pastures, on road sides, banks, &c.; has many long deep gashed leaves, lying on the ground; and several slender, hollow, weak, naked, foot stalks, each bearing at the top one large yellow flower, which has the remarkable quality of expanding early in the morning, and closing in the evening.

The root, leaves, and stalk, contain a large proportion of bitter milky juice,

which possesses considerable activity. Its more immediate action is to remove visceral obstructions, particularly of the kidneys and urinary passages, and the spleen. It is one of the best remedies for a real affection of the liver, with which I am acquainted, and is useful in all dropsical and hypochondriac complaints. A table spoonful of the fresh juice may be taken three or four times a day, though some prescribe larger doses. It is very effectual in scirrhus and hardness of the liver. A decoction may be made of it, but it is inferior to the pure juice.

DAISIES. The herb.

The juice or decoction of these common plants drank freely, is healing, cleansing, antiscorbutic, and useful in visceral obstructions. The leaves bruised and applied to a swelled and inflamed testicle, or any other inflammation, gives great relief; inflamed parts may also be fomented with them, with benefit.

DEADLY NIGHT SHADE.—*Atropa Belladonna*. The leaves.

This poisonous plant grows about old waste stony places, in grave yards, along road sides, and in mountainous and woody situations; and is often cultivated in gardens. Its root is very thick, whitish, sending forth stems from three to five feet high; leaves of an unequal size, egg-shaped, and pointed, and are in pairs, on short foot stalks; flowers of a dark purple, large, pendant, bell-shaped and furrowed, the border cut into five segments.

Night shade has been found, notwithstanding its powerful narcotic qualities, to be a valuable remedy in many disorders, and may be given internally as well as applied externally. It is almost a specific in scarlet fever and putrid sore throat; at least I have never known it to fail, when properly used in those diseases. A drop or two, twice a day, of a pure saturated tincture, made from the herb, is enough: more might be hurtful. Or a drink may be made by pouring a quart of boiling water on half a drachm of the dry pulverized leaves, of which a table spoonful may be taken morning and night, increasing gradually to nearly a tea cupful, according to its effect. This decoction may also be used with advantage in the cure of cancers, scirrhus, and indolent tumors, and the like; at the same time applying a poultice of the powdered leaves, wet with vinegar, over the cancer or tumor, twice a day, till it breaks or is discussed. If it breaks, the ulcer may be washed with an infusion of the herb, and the dry powder sprinkled over it, or a poultice of the same applied daily, till the cancer is cured. For the cure of cancers and ulcers in the legs, the above is often sufficient; but it requires to be administered with a careful hand.

The night shade is sometimes given in powder, of which one fourth of a grain is a dose for a child, or a grain for a man, repeated daily, and gradually increased.

DEVIL'S BIT.—*Veratrum Luteum*. The root.

This plant rises two or three feet in height, with a small round green stalk, set with many long, smooth, dark green leaves; at the end of each branch stands a round head of many small blue flowers.

It grows in moist meadows and pastures; root bulbous, with many small hairs or fibres, of a blackish color outside, and brown within. It has been confounded with the star root, but it is an entirely different article.

The root is a good astringent, and is efficacious in the cure of scrofula, relieving after-pains in women, pain in the breast, and a gargle in putrid sore

throat. For the cure of scrofula, boil four ounces of the bruised root to two quarts, and give a tea cupful for a dose, four times a day.

BITTER DOGSBANE.—*Apocynum Androsemfolium*. The root, flowers, and leaves.

Also bitter root, fly trap, honey bloom, &c.

This is rather a common plant, found in most parts of the United States. It grows in woods, hills, dry sandy soils, by the side of fences, and in old fields. The root is perrennial, large, bitter, and milky, like the whole plant; stalk very smooth as well as the leaves, with a tough fibrous bark, from three to five feet high, with few leaves and branches, round, and often rose-colored; leaves opposite, two or three inches long, ovate, acute, pale beneath, with one large nerve; flowers on flower stems, lateral and terminal, always longer than the leaves, nodding, few, and bell-shaped; flesh or rose colored.

This is a very active plant. It is tonic, emetic, alterative and syphilitic. The root is the most powerful part; but it must be used fresh, since time diminishes or destroys its power. At the dose of thirty grains of the fresh powdered root, it acts as an emetic, equal to ipecac; in smaller doses it is a tonic, useful in dyspepsia and fevers. Some of the Southern tribes of Indians employ it in syphilis, and consider it a specific; they use the fresh root chewed, swallowing only the juice. It has been used for the same purpose in Kentucky and Tennessee, and kept a secret.

DOGWOOD, BOXWOOD.—*Cornus Florida*. The fruit and bark.

This is one of our most beautiful and useful shrubs, growing in moist woods and swamps, in almost every part of the United States. It is so well known by its large white flowers, which appear early in May, that it needs no description.

The bark, berries, or flowers, are excellent tonics, antiseptics and febrifuges, and, in my opinion superior to the Peruvian bark for all the purposes in which that is used. The ripe fruit or berries, infused in brandy or spirits, make an excellent bitter. The powdered bark may be used in intermittent and remittent fevers, and all febrile disorders, in doses of from twenty-five to thirty-five grains, often repeated; or it may be used in warm infusion, for these purposes.

In cases of debility it acts as a corroborant, and may be joined with gentians, colombo, camomile, seneca root, &c.

YELLOW DOCK.—*Acetosa Vulgaris*. The root.

Also, sour dock, from the leaves being sour, although the root is bitter. It has a long yellow root, and is well known.

Yellow dock is a valuable detergent and cleansing medicine. It is supposed to possess considerable efficacy in curing cancer, and similar affections, for which the decoction of the root should be drank continually, and a poultice of the bruised roots laid on. It is considerably narcotic, and requires to be used with judgment. A pound of the green roots may be boiled to a quart, and a table spoonful taken at a dose, three times a day. Too large a dose will produce vomiting. Ten grains of the pulverized root is also a dose.

Yellow dock may be used alone, or in a compound, in all eruptive disorders arising from impure humors, particularly in scrofula.

DEER FOOD.—FROG LEAF.—*Brasenia Hydropeltis*. The leaves.

Grows in the Southern and some of the Western States, found only in some local places, but extremely abundant, and spreading so as to cover the whole surface of ponds, lakes, marshes, and sluggish streams. The roots creep in mud and water; leaves resemble an oblong shield, stem in the centre, with regular radiating veins, the leaf smooth on top, white and covered with a coat of pale jelly beneath, and floats on the water; flowers of a dark purple color.

It is mucilaginous, astringent, demulcent, tonic, and nutritive; has no smell, but the taste is sub-astringent and bitterish. The fresh leaves may be used like lichen, in pulmonary complaints, and dysentery, debility, &c., and should be boiled into a decoction or jelly.

This plant is sometimes known by the name of water shield, and little water lily, and is a favorite food of deer.

ELATERIUM, OR WILD CUCUMBER.—*Cucumis Agrestis*.

The dried juice of this plant is the elaterium of the shops. It has neither smell nor taste, and is the most powerful cathartic in the whole materia medica. Its efficacy in dropsies is considerable; it requires great caution in the exhibition, however. From the eighth to the half of a grain should be given at first, and repeated at proper intervals till it operates.

COMMON ELDER.—*Sambucus Nigra*. The inner bark, flowers, and berries.

This tree is frequent in hedges, flowers in May, and ripens its fruit in September; the berries have a sweetish, not unpleasant taste; nevertheless, eaten in substance, they offend the stomach.

The expressed juice of the berries, dried to the consistence of a rob, proves an useful aperient medicine; it opens obstructions of the viscera, promotes the natural evacuations, and if continued a length of time does considerable service in various chronic disorders. An ounce of the juice of the berries, purges.

The inner green bark is greatly cathartic. An infusion of it in wine, or the expressed juice, in the dose of half an ounce or more, is said to purge moderately, and in smaller doses to prove an efficacious deobstruent, capable of promoting all the fluid secretions. The young leaf buds are strongly purgative, and act with violence.

An ointment for burns is formed of elder bark. Elder flowers in decoction are very useful in erysipelatous fevers.

DWARF ELDER.—*Sambucus Ebulus*.

It rises two or three feet in height, is herb-like, erect and prickly; leaves opposite, pinnated, composed of four or five pair, with an odd one at the extremity; flowers terminal, umbelliferous, in scattered shafts; the fruit is a round, black, single-celled berry, containing three irregular-shaped seeds. It grows in hedges and along road sides in almost every part of America.

The juice, and decoction of the roots have been found most efficacious in curing dropsies. It is a powerful hydragogue, or water purge. A gill of the juice of the inner green bark works powerfully both upwards and downwards, and has frequently cured dropsies. For common use in the dropsy, two ounces of the dried root may be boiled to a quart, and a gill taken morning and night. One ounce of the inner green bark, dried, and one of the dry roots, may be boiled to two quarts; a tea cupful taken three times a day works powerfully as a diuretic, and is good in suppression of the urine.

ELECAMPANE.—*Inula Helenium*. The root.

This is a very large, downy, perennial plant, found in rich cultivated soil, or by the road sides; a number of large leaves rise annually from the root, from the centre of which rises a stalk three or four feet high, bearing leaves all the way up, which are smallest at the top; has many branches, producing large yellow flowers, somewhat in the form of a sun-flower. The root is white, with prongs running deep into the ground. Its taste on first chewing is glutinous and somewhat rancid, quickly succeeded by an aromatic bitterness and pungency.

This root is an excellent pectoral, and is beneficial in coughs; it is also detergent, attenuant, laxative, stomachic, diuretic and diaphoretic. It attenuates viscid phlegm, relieves humoral coughs and asthmas, excites urine and insensible perspiration, gently loosens the bowels, strengthens the stomach, and the tone of the viscera in general.

It may be taken alone, in powder or decoction, or it may be combined with other articles and formed into a syrup, for all the above diseases. A tea spoonful of the pulverized root may be taken three times a day, in molasses, together with a tea cupful of a decoction of one pound of the dried root boiled to three quarts, taken night and morning.

Elecampane, comfrey, and slippery elm boiled to a syrup and mixed with honey, and taken freely three or four times a day, is an excellent remedy for coughs.

SLIPPERY ELM.—*Ulmus Dulcis*. The inner bark.

This is a large tree, and is well known, growing throughout the United States.

Slippery elm bark taken continually in decoction, has been found very effectual in the cure of scorbutic and herpetic eruptions, whites, gleet, clap, ulcers, &c., and is one of the best poultices for fresh wounds, burns, scalds, bruises, and ulcers, that can be applied. The surgeons in the Revolutionary army experienced the most happy effects from its application to gunshot wounds, which were soon brought to a good suppuration and a disposition to heal. It was applied as the first remedy. When tendency to mortification was evident, this bark, bruised and boiled in water, produced the most surprising good effects. In old ill-conditioned ulcers, equal benefit was derived from it. The infusion of the bark was used with advantage as a diet drink in pleurisy and catarrh, and also in diarrhoea and dysentery.

Its constant use is very proper for pregnant women during the seventh month, as it facilitates the birth and causes a speedy and easy delivery.

ERGOT, OR SPURRED RYE.—*Secale Cereale*.

Ergot is a powerful emmenagogue, exciting a specific action upon the womb, and capable of producing abortion at any stage of pregnancy. It is very frequently, and in most cases, I believe, very erroneously, employed to excite *forcible* pains in delivery, even when there is no necessity for it, which cannot but injure the woman. From five to ten or fifteen grains of the powder may be taken at a dose; but it is more active in decoction, half a drachm of the powder being gently boiled in half a pint of water, one third may be given every twenty minutes, until proper pains have commenced. A large dose will excite nausea and vomiting.

ERYNGO, OR SEA HOLLY.—*Eryngium Maritimum*. The root.

This shrub grows along the sea coast; rises from one to two feet high;

leaves circular, plaited, firm, of a pale blue color, and marked with white veins; flowers blue, and terminate the branches in round heads; flowers from August to September.

The root is aromatic, expectorant, corroborant, and stimulant, and has been found beneficial in debilitated, consumptive patients; it invigorates the system, and excites to ventry. It may be prepared as follows; boil two ounces of shavings of deer's horns, in two quarts of barley water, to one quart; then add four ounces of eryngo root, and a quart of new milk, and boil it down to three pints; strain it for use. In consumptive debilitated habits, the patient may take a dish of this three or four times a day, which will invigorate the system, and restore natural spirits.

FEVERFEW.—*Matricaria Vulgaris*. The leaves and flowers.

This plant grows chiefly in gardens, and is so well known as to need no description. It is sometimes misnamed featherfew.

Both the wild and garden feverfew have the same virtues. They are warm, aperient, carminative, bitter, and strengthen the stomach, expels wind, promotes the menses, destroys worms, and is beneficial in hysterical complaints and lowness of spirits. For a decoction, pour two quarts of boiling water on two handfuls of the leaves, of which a tea cupful may be taken three or four times a day, in order to promote the menses; the same may be taken in colds and fevers. In hysterical complaints, a tea spoonful of the compound spirit of lavender may be added to the above decoction.

FEVER BUSH, OR SPICE BUSH.—*Dumus Febris*. The bark.

This bush grows along the sides of low moist meadows, and in wet swamps. It rises five or six feet high; leaves ovate and numerous; blossoms of a pale reddish color; berries blood red, and of a fragrant aromatic smell.

The bark, in decoction, is cooling and cordial, and is exceedingly useful in all kinds of fevers for allaying the heat and relieving the system. After proper evacuations, it may be given with advantage in all kinds of fevers and inflammations as a common drink. I make great use of it for these purposes. It is used by the Indians in all inflammatory complaints, and is much esteemed by the country people for the same purpose.

MALE FERN.—*Polypodium Felix Mas*. The root.

This plant grows on the mountains and among the rocks, in New-Jersey, and other parts of the United States. The leaves are fan-like, shoot from the root, curl round in their young state, and afterwards extend themselves three or four feet. The leaves spread wider than the female fern. The root, when chewed, is somewhat mucilaginous and sweet, and afterwards astringent and bitter.

The root of this plant has been found a powerful remedy for worms, especially the tapeworm. This is the famous remedy of Madame Nouffier, of the tapeworm. She acquired the knowledge of it from her husband, who was a surgeon, and obtained a great price for the secret from Louis XV. of France, by whose order it was published. The powdered plant was generally preferred by Madame N., and may be given in doses of from sixty grains to two drachms. It may also be taken in decoction, and drank freely, day after day, giving a purge of blue flag, or mandrake, to finish the operation.

Another method of administering it is, the day previous to taking the powder, to give a smart purge, as of blue flag, and after its operation to take

a light supper. The next morning give three drachms of the powdered fern root, and two hours afterwards another dose of the blue flag, and drink a tea cupful of the skunk cabbage root decoction every hour till the tapeworm is expelled, taking care to sit on a close stool, and not break the worm, but pull it gently. In case the worm is not expelled the first day, the medicine is to be repeated the next. The worm has been destroyed by a drachm of the powder, without any purge.

FLAX.—*Linum Usitatissimum*. The seeds and their oil.

Flaxseed is emollient and demulcent, and is used in poultices. The infusion or tea is a good pectoral, and when sweetened with honey, is very proper in heat of urine, recent coughs and rheums, and diseases of the chest and lungs.

FIVE FINGER, OR CINQUEFOIL.—*Potentilla Reptans*. The leaves and root.

The stalks of this grass, trail along the ground with long slender strings like strawberries; each stem has five leaves, placed together, of unequal size, obtuse, serrated and veined; flowers yellow and the root small. It grows by road sides, on meadow banks, and waste grounds.

The root is a gentle astringent, and has been found by experience to be very beneficial in fevers, and particularly when there is great debility, lassitude and night sweats, which last it seldom fails to check; it also helps the appetite. It is taken in decoction, or it may be boiled with milk. It is serviceable in allaying fluxes, immoderate flow of the menses, &c.

FOXGLOVE.—*Digitalis Purpurea*. The leaves.

This elegant plant is indigenous, biennial, very common on hedge banks and sides of hills, in dry, gravelly, or sandy soils, and the beauty of its appearance gained it a place in gardens. The stalk is erect, tapering, and four feet in height; leaves large, oval, wrinkled, veined, on short winged foot-stalks, downy underneath; the flowers always on one side are purple, bell shaped, marked internally with little dark colored spots placed in whitish rings, and long hairs defend the entrance of the tube; hence no insects ever approach this flower.

This is a powerful medicine, and may be employed to subserve many valuable purposes. Its effects when swallowed are, to diminish the irritability of the system, to increase the action of the absorbents, and to increase the discharge by urine. In excessive doses it produces vomiting, purging, dimness of the sight, vertigo, delirium, hiccup, convulsions, and death. For these the best remedies are cordials and stimulants.

Internally, digitalis has been recommended in inflammatory diseases, (from its remarkable power of diminishing the velocity of the circulation,) in hæmorrhages, spasmodic affections, as asthma, palpitations, in madness, dropsy, scrofula, gonorrhœa, and aneurism. Externally it has been applied to scrofulous tumors.

It may be exhibited in substance, either by itself or conjoined with some aromatic, or made into pills with balsam of fir, or with soap and gum ammoniac. Of the powder may be given, at first, one grain twice a day, gradually increasing the dose till it acts upon the pulse, kidneys, stomach, and bowels, when its use may be suspended. It may also be given in infusion; a drachm of the dried leaves may be infused four hours in four ounces of hot water, adding an ounce of spirits to preserve it. Half an ounce of this infusion may be taken twice a day. For a decoction, four ounces of the fresh leaves

may be boiled from two pounds of water to one, and half an ounce of the strained liquor taken every two hours till four are taken. For a tincture, put one ounce of the dried pulverized leaves into four ounces of fourth proof spirits, and let it stand in a warm place forty-eight hours, frequently shaking it up; this, when strained, forms a saturated tincture, of which twenty drops may be taken twice or thrice a day.

Digitalis, though one of the most powerful narcotics, acts likewise as one of the most certain diuretics, in dropsy, apparently from its power of promoting absorption. It has frequently succeeded where other diuretics have failed. In this disease, it is best given in substance.

For relieving the scalding in gonorrhœa, and assisting in the cure, it may be made into pills with balsam of fir, which is very convenient and appropriate.

FROSTWORT.—*Cistus Canadensis*. The leaves.

This plant rises two feet high; leaves numerous, ovate, very small, and of a whitish color, like frost, and grows on small purple stalks; flowers of a pale color and inconspicuous, which terminate in a small pod containing very small seed. It is newly discovered, and grows in the woods on Long Island, and plentifully in New-Jersey, and is known by the name of frostwort, from its color.

It has been found effectual in the cure of scrofula or king's evil. For the cure of this disease, let the patient drink of the following infusion three times a day; put four ounces of the dry leaves into a teapot filled with boiling water, and wash the sores with the same. For an external application to the tumors, take one handful of the dry leaves, a quart of rum, and a table spoonful of black pepper; set this on hot embers for two hours to simmer; strain it, and add a handful or two more of the leaves, and simmer it again for half an hour; then thicken it by stirring in two ounces of the powdered leaves, and apply it as a poultice over the scrofulous tumors twice a day. This treatment has cured many in this city.

FENNEL. The seeds.

Fennel is a cultivated plant, and is an excellent aromatic and carminative, similar to caraway, dill, &c. The seeds, taken in substance or boiled in milk, are beneficial in removing visceral obstructions.

FUMITORY.—*Fumaria Officinalis*. The leaves.

This plant rises a foot high; leaves pale green, compound, doubly pinnated; flowers of a reddish purple, and grow in spikes, which arise from the axilla of the leaves. It grows common in cornfields, and by the side of fences.

Fumitory is a tonic bitter, and antiscorbutic, and has been found efficacious in the cure of leprosy and other cutaneous eruptions. For these purposes it should be drank freely in decoction. Two ounces of the flowers and tops infused in three pints of Madeira wine, and a wine glass taken twice a day, will strengthen the stomach and create a good appetite.

GALEANUM. The gum resin.

This is a foreign drug, a native of Africa, and comes in pale colored pieces, about the size of a hazle nut. Proof spirit dissolves it entirely, the impurities excepted.

Galbanum possesses the virtues of the fœtid gums, and is used for the

same purposes; dose from ten grains to a drachm. It is chiefly employed in the form of a plaster to white swellings, and is supposed to resolve and discuss tumors, and promote suppuration. In hysteric spasms and inflamed piles, an application of a tincture from this gum affords very effectual relief; but in the latter case, the painful parts ought to be covered with linen rags moistened in lime water, before the tincture is dropped upon them.

GALL NUT.—*Quercus Cerris*.

This is an excrescence growing on the Oriental oak, found in the warm countries of Europe.

Galls have an austere styptic taste, without any smell, and are one of the most powerful astringents known. It is said that, by their internal use, in doses of half a drachm of the powder, intermittent fevers have been cured, when Peruvian bark failed. An infusion or decoction of the galls may be used with advantage as an astringent gargle; and an ointment of the finely powdered galls is used with success in the piles.

GAMBOGE.—*Gambogia*. A gum resin.

A vegetable juice of a resinous nature, imported from the East Indies. The best sort is of a deep yellow color, divested of all smell, and has very little taste.

It is a violent cathartic, operating both upwards and downwards. It has been used in dropsies, in small nauseating doses, as a water purge, and will often bring away large quantities of water. Gamboge is also recommended to be taken for the tape worm, in doses of fifteen grains, early in the morning; and if the worm be not expelled in two or three hours, this powerful dose is said to have been repeated with safety and success, even to the third time. From two to four grains is a common cathartic dose. Great precaution, however, is requisite in the use of this precarious and active medicine. If too large a dose should be accidentally swallowed, the most effectual antidote will be copious draughts of a solution of pearlsh in water.

GARDEN PEONY.—*Pæonia Officinalis*. The root.

This plant has been introduced into many American gardens, from Europe. Rises two feet high; leaves cut into lobes, which are oblong and pinnated; flowers large and red.

It is noted for its virtues in the cure of epilepsy, and fits in children. The roots must be dug in March, dried, pulverized, and kept in bottles. Adults subject to the epilepsy, may take a dessert spoonful of the powder four times a day, in a tea cupful of bittersweet tea, also apply the bruised roots to the soles of the feet when going to bed.

GARLIC.—*Allium Sativum*. The root.

Garlic is a perennial, bulbous rooted plant, all the parts of which, especially the roots, have a strong, offensive, very penetrating and diffusive smell, and an acrimonious taste. It is a powerful and diffusive stimulant; hence in cold phlegmatic habits, catarrhus disorders of the chest, asthma, both pituitous and spasmodic, flatulent colics, hysterical and other diseases proceeding from laxity of the solids, garlic is eminently serviceable, proving expectorant, diuretic, and if the patient be kept warm, sudorific. Sydenham extols it in dropsy, and assures us, also, that among all the substances which occasion a derivation or revulsion from the head, no one operates more powerfully than garlic applied to the soles of the feet.

Garlic may be exhibited in substance, several cloves of it cut into slices, may be swallowed without chewing. In this manner it has been successfully used in the cure of dropsy, and intermittent fevers; it may also be administered in the form of bolus or pills. Cotton moistened with the juice and introduced into the ear five or six times a day, has afforded relief in deafness coming from decay, or rheumatism. In the form of ointment applied externally, garlic is said to resolve and discuss indolent tumors; and when applied under the form of a poultice to the pubes, it relieves spasms upon the urinary passages, and promotes the discharge of urine, when it is obstructed.

GENTIAN.—*Gentiana Americana*. The root.

There are many species of gentian scattered throughout the United States, in great abundance. Some have blue flowers, others yellow. Some are known by the names of blue gentian, bitter root, blue bells, &c. All our gentians are autumnal plants, blossoming very late, from September to November. They are all ornamental and would adorn a garden, and are more or less bitter in the roots and leaves.

The species here described rises two or three feet in height; the stem strong, smooth, and erect; the leaves which arise from the lower part of the stem are spear-shaped, large ribs and rough; those from the upper part are more ovate, smooth, and sessile; large yellow flowers, produced in whorls, which terminate in yellow bitter berries, which grow along the stalks. It is perennial, and grows on the sides of roads, and in waste pastures.

The root possesses the general virtues of bitters in an eminent degree, and is wholly devoid of astringency. It is tonic, antiseptic, and in large doses cathartic and sudorific. It invigorates the stomach, and is very useful in debility of the digestive organs; it increases the appetite, prevents the acidification of food, enables the stomach to bear and digest solid food, and thus cures indigestion and dyspepsia. It enters into most of the digestive pills and preparations. Compounded with astringents it cures intermittents more sure than the Peruvian bark. It is much used in the Southern States, in hectic and nervous fevers, inflammation of the lungs, &c., acting as a sudorific tonic. It may be used in general debility. The dose is, in substance, ten to forty grains of the powdered root, but it is more frequently taken in tincture or wine.

GINSENG.—*Panax Quinquefolium*. The root.

This plant rises a foot in height; the leaves rise with the flower-stalk from a thick joint in the stem, and have the appearance, from their disposition of being one digistated leaf, on short purple foot-stalks, all fixed to a common petiole, smooth, serrated, and pointed. Flowers forming a small round umbel. It is perennial, and grows abundantly on the sides of mountains and in rich soils, in most parts of the United States, and particularly in the rich Western States. It flowers in July, and has blackish berries; the root is about the thickness of the little finger, two inches long, of a whitish yellow color, and wrinkled on the surface. It has an agreeable, sweetish taste, but no smell.

This root is good in gravel and all debilitated habits, creates a good appetite, invigorates the system, and is an excellent restorative to those fatigued by travelling. A pound of the fresh roots, bruised, infused in a gallon of old Jamaica spirits for ten or twelve days, may be taken in a dose of a wine glassful three times a day, on an empty stomach. This will be found

beneficial in all weaknesses from excessive venery, pain in the bones from colds, and in gravelly complaints.

GINGER.—*Amonum Zingiber*. The root.

Ginger root is imported from the East and West Indies. It is in small wrinkled pieces, of a grayish color, having an aromatic odor, and a very pungent taste.

The root is frequently employed as a grateful and moderately powerful aromatic, either in combination with other remedies, or by itself, as a stimulant, particularly in dyspepsia, flatulence, tympanites, and gout. The spicy root is more immediately serviceable in cold flatulent colics: in laxity and debility of the stomach and intestines, and especially in torpid phlegmatic constitutions, in order to induce a more brisk action of the vessels.

GOLDEN ROD.—*Solidago Virga Aurea*. The leaves and flowers.

Grows in woods and meadows, and along fences, in most parts of the United States; perennial, and rises about two feet in height; small brown round stalks, divided at the top into small branches, with many long green leaves; flowers small and yellow, on every one of the branches, all of which are turned one way, and when ripe they become as down, and are carried away by the wind. It flowers in July.

The flowers are aperient and corroborant, and the leaves are gently astringent. The flowers have been found beneficial in removing obstructions of the urinary organs, in gravelly complaints, ulcerations of the bladder, is good in vitiation of the humors, and in the first stage of dropsies. The leaves are good in debility, and laxity of the viscera or bowels, and all disorders proceeding from that cause. They may be taken in infusion, or decoction.

GOLDTHREAD.—*Coptis Trifolia*. The root.

Is found plentifully in New-York, and all the Eastern States, most commonly in mossy swamps, and evergreen woods. The root is creeping, thread-like, of a bright yellow, with many small fibres; leaves radical, evergreen, on long slender petioles, three on a stem; flowers white. The plant itself has the appearance of the strawberry vine.

It is a pure intense bitter, without smell, or astringency; is tonic, stomachic, promoting digestion, useful in dyspepsia, debility, after fevers, and whenever a pure bitter is required. A tincture made with an ounce of the roots in a pound of diluted alcohol, is recommended in doses of a tea spoonful thrice a day; or ten or twenty grains of the powders; both agree with the stomach.

But the principal use made of this root by the country people, is for a gargle in ulcerations of the mouth, particularly in children, for which purpose it is much esteemed.

GOLDEN SEAL.—*Hydrastis Canadensis*. The root.

Grows on rich moist land; has a stem ten or twelve inches high, and often but one leaf, of an olive green color; there are sometimes two leaves, and on one of them is a kind of seed, or seal, which is red. The root is crooked, knobby, wrinkled, with many long fibres, and of a bright yellow. It is found from Canada to Tennessee. Taste exceedingly bitter.

It is sometimes known by the names of yellow root, ground raspberry, yellow paint, yellow eye root, Indian paint, orange root.

It is an estimable tonic, and at the same time laxative, which makes it very appropriate in dyspeptic disorders; also detergent and stimulant. The plant is much used in the Western States for diseases of the eyes, the juice or infusion are used as a wash, in sore or inflamed eyes. It is considered a specific by the Indians for that disorder; they also employ it for sore legs, and many external complaints, as a topical tonic. Internally it is used as a bitter tonic, in infusion or tincture, in disorders of the stomach, bile, and liver. A half ounce of the dry pulverized roots is sufficient to infuse in a quart of spirits.

This root appears also to be slightly narcotic, and is said to enter into many of the compounded remedies for cancer. Some Indians employ it as a diuretic, stimulant, and escharotic, using the powder for blistering, and the infusion for the dropsy.

Golden seal bitters forms one of the best correctives of bile, and bilious habits, that can be given.

GOOSEBERRY. Bark of the root.

The bark of gooseberry roots, in decoction, is considerably diuretic, and is said to have cured the gravel. Black currant root bark possesses the same qualities.

GROUND IVY.—*Glechoma Hederacea*. The leaves.

The leaves of this plant are scoloped, hairy, in opposite pairs, having long petioles, which are channelled; flowers in whorls, of a bluish color, on short stems. This plant grows about garden fences, and on the sides of moist meadows, and runs along under the hedges.

It purifies the blood, is a good pectoral, and the expressed juice snuffed up the nose, has cured the most inveterate head-ache. It is good in consumption and obstructions, laxity and debility of the viscera, for cleansing and healing ulcers in the lungs, kidneys, and other internal parts, and is an efficacious remedy in jaundice and asthmatic coughs.

A gill of the expressed juice of the green leaves, morning and night, in a half pint of wild cherry bark tea, may be taken.

STINKING GOOSEFOOT.—*Chenopodium Fætidum*.

This plant rises near a foot in height; leaves numerous, mealy, and alternate; flowers small and inconspicuous, of a light green, and placed in clusters, but has no seed vessel. It grows near old walls, old ruins, dung-hills, &c.; flowers in August, and in its fresh state has the smell of putrid salt fish.

The green leaves are excellent medicine in hysteric and spasmodic complaints. In all hysteric fits, give the patient a tea spoonful of the juice, or two tea spoonfuls of the dried leaves, in a little peppermint or pennyroyal water, every two hours, which generally gives immediate relief, quicker and more effectual than assafoetida.

GUAIACUM. Wood and resin.

Guaiacum, or lignum vitæ, is a native of the West Indies. The wood and gum are the parts used in medicine. The wood is hard and heavy, of a yellow color, has little smell, and a moderately bitter taste. Guin guaiacum is of a friable nature, of a deep greenish color, and sometimes of a reddish hue, and has a pungent acrid taste.

The general virtues of guaiacum are those of warm aromatic medicine; it

strengthens the stomach and other viscera, and greatly promotes the discharge of urine and perspiration. Hence it is of especial service in cutaneous eruptions, and disorders arising from obstructions of the excretory glands; in rheumatic and mercurial pains it has often afforded considerable relief. It was at one time supposed to be a radical cure for the syphilis, but alone it is not to be depended on, though it forms a valuable adjunct to other remedies for that disease, and enters into most of the syrups and preparations used in it. The gum is likewise a good laxative; when dissolved in rum, or combined with water by means of mucilage, or the yolk of an egg, or in the form of tincture or clixir, it has been found useful in chronic rheumatism, or even in such wandering pains of the stomach and other parts of the body as could be attributed to the retrocedent gout.

The form in which guaiacum wood is administered is always that of a decoction. A quart of it is drank in the course of a day. If taken warm it produces sweat.

GUM ARABIC.

This, the purest of the gums, is obtained by spontaneous exudation from the mimosa tree. It is in small irregular pieces, white or yellowish, semipellucid, without taste or smell. It has all the properties of gum; is insoluble in alcohol or oils, and soluble in water, forming a viscid solution termed mucilage.

Gum arabic is used as a demulcent. It is useful in dysentery, diarrhœa, strangury and heat of urine, when it should be given in solution. It forms an excellent basis for all cough mixtures. In pharmacy, mucilage of gum arabic is employed for a variety of purposes. It serves to suspend heavy powders in water, gives tenacity to substances made into pills, and it effects a partial union of oils, balsams, and resins, with water.

GUM TRAGACANTH.

Is the product of a very thorny shrub which grows on the island of Candia and some other places in the Levant. It comes in small wrinkled pieces, semi-transparent, and brittle; has neither taste nor smell, and is entirely a pure gum. It is greatly superior to all the gums in giving viscosity to water, its power in this respect being to that of gum arabic as twenty-four to one. Its solution is not perfectly uniform unless boiled for some time.

Tragacanth has virtues similar to gum arabic, and is principally employed as a demulcent, to blunt acrimonies, and as a pharmaceutic agent.

HART'S TONGUE.—*Asplenium Scolopendrium*. The leaves.

The leaves of this plant are long, tongue-shaped, entire, pointed, on radical foot-stalks, of a shining black color, and waved at the margin. It grows among the rocks in shady places.

It has an astringent quality, and when made into an ointment, is beneficial in curing burns and the piles, and when taken internally, infused in wine, prevents the spitting of blood, and is effectual in the cure of the diarrhœa and dysentery. It may be administered in decoction, in wine; or made into an ointment with linseed oil and mutton suet.

WHITE HELLEBORE.—*Veratrum Album*. The root.

This plant rises three feet in height; leaves large, oval, ribbed, entire, plaited, and sessile; flowers bi-sexual, and of a greenish color, on long terminal spikes. It grows in moist meadows, in swamps, and on the sides of stony

running brooks, and is one of the first plants we discover in the spring throughout the Northern States, and is equally as efficacious in medicine as those imported; flowers in July.

The root only is made use of for medical purposes. They must be dug in the spring, or late in the fall, when the leaves are dead, and ground in a mill, for use. The root has a strong disagreeable smell when fresh, which is lost by drying, and an acrid taste which is retained. Snuffed up the nostrils in very small quantities, it excites violent sneezing, with a sense of heat and a copious discharge of mucus, which renders it useful in catarrhs, headaches, mania, &c. Taken internally in doses of a few grains, it acts as a violent emetic and cathartic. Externally, mixed with lard, it is said to be an infallible cure for the itch and scald head.

Dr. Henry formed an ointment of it by mixing it with mutton gravy; for use in cutaneous affections.

BLACK HELLEBORE.—*Helleborus Nigrus*. The root.

This species has fair green leaves, arising from the root, divided into seven, eight, or nine parts, and remaining green all winter. About Christmas time, if the weather be temperate, the flowers appear upon foot-stalks, consisting of five large, round white leaves, which are sometimes purple towards the edges. It generally is found among mountains. The root of this plant consists externally of small fibres, attached to one head; externally dark colored, internally white.

Black hellebore root is a very violent cathartic, in doses from ten to twenty grains; so violent, indeed, that it is seldom used. On its cathartic power probably depends any advantage that may be derived from its administration in mania and melancholy, in which diseases it was highly celebrated by the ancients. In dropsy it has been employed as a hydragogue cathartic. It is said a pessary of this root will bring on the menses.

STINKING HELLEBORE, or BEAR'S FOOT. The leaves.

This species is a native of England, and grows in shady places and under hedges. The leaves have a bitter, nauseous taste, and unpleasant smell. When dried they are frequently given as a domestic medicine to destroy worms, but they must be used sparingly, being so violent in their operation, that instances of their fatal effects have been recorded. Snuffed up the nostrils in very small quantity it excites violent sneezing, and a copious discharge. Internally, in doses of a few grains, it operates powerfully as an emetic. Externally, with lard it is used as an application in some cutaneous disorders.

HOGWEED, or HOGGED.—*Ambrosia*. The herb.

This curious plant rises about three inches in height, forming a bed; the leaves spring out from a long reddish tendril, like a vine, and are of a deep green color, small and curly. It is an evergreen, and grows chiefly near farm yards, on stony soil, and in mucky swamps. The hogs delight to make their bed on it, from whence its name.

This plant is well known by the women in the country, who always find it effectual in bringing down obstructed courses. It may be used in strong decoction, with a little rum added.

HOARHOUND.—*Marrubium Vulgare*. The herb.

This common useful plant rises about a foot in height; leaves deeply serrated, veined, wrinkled, hoary, in pairs, and standing on long foot stalks;

flowers white, and in whorls. It is perennial, and grows wild along the road sides, &c., in abundance throughout the United States.

The leaves are aperient and deobstruent; they promote the fluid secretions in general, and drank freely, obviate costiveness, are beneficial in most asthmas, coughs, yellow jaundice, cachexy, menstrual obstructions, dropsy, and are good to destroy worms. An infusion of the leaves is good to carry off a salivation. In these complaints the patient may take a gill of the expressed juice every morning fasting, in half a pint of fresh new milk: or its equivalent in decoction, or powder.

HOP.—*Humulus Lupulus*. The flower.

Description is unnecessary. It is an agreeable bitter, anodyne, diuretic remedy, though its virtues are not properly appreciated. The extract or tincture of hops may be advantageously substituted for opium in most cases, as it possesses its anodyne qualities, without the narcotic, and it may be given in many cases where opium cannot be employed. In consumptions, particularly, it is preferable, as it gives ease, without any deleterious effects. It has been employed with success in jaundice, indigestion, hypochondriac passions, venereal, worms, &c.

Another very useful purpose for which hops may be employed, is for fomentations in inflammatory fevers, especially in pleurisies, where they give the most agreeable relief. A pillow filled with the flowers, and laid beneath the head, has been found to promote sleep in patients afflicted with delirious fevers.

The extracts of hops is made by boiling the strength to a thin syrup, and then evaporating it till it becomes thick, when it should be put in a pot, and covered with alcohol to prevent its moulding: dose from five to ten grains, in pills, to be taken three times a day, fasting.

It is said the Spaniards boil a pound of the hop roots in four quarts of water down to six pints, and drink half a pint, warm in the morning when in bed, to cure the venereal.

HARDHACK.—*Collinsonia*. The root.

Also called ox balm, horseweed, stoneroot, healall, knotroot, richweed.

This plant rises with a straight stem about two feet high: only two or three pairs of large thin leaves, on long footstalks, heart-shaped and pointed; flowers yellowish, on long leafless spires; root knotty, flat, and hard as a stone. It is found from Canada to Carolina, generally in rich valleys, and very common in Pennsylvania and New-York. The whole plant has a strong balsamic smell, and affords by distillation, an essential oil possessing the same smell. The taste is pungent and warm.

Hardhack is healing, corroborant, carminative, subtonic, diuretic, and a warm stimulant. It is one of the plants called healall, in the United States, because they cure sores and wounds; the Indians employ this plant for that purpose. In the mountains and hills of Virginia, Kentucky, Tennessee and Carolina, this genus is considered as a paucacea, and used outwardly and inwardly in many disorders. It is applied in poultice and wash for bruises, sores, blows, falls, wounds, sprains, contusions, and taken like tea for head-aches, colics, cramps, dropsy, indigestion. The whole plants are used both fresh and dry; they are also employed for the sore backs of horses. There are many species of this plant, but their virtues are all similar.

The root should be dug in the spring, cut into thin slices, and dried sufficiently over a slow fire for pulverization, when it should be bottled up for use. It may be administered in powder or decoction. A tea spoonful of the powder may be taken four or five times a day.

HEART'S-EASE.

What is commonly known as heart's-ease, in this country, resembles arse-smart, only growing much longer, and has a black spot in the shape of a heart on its leaves.

Its properties are similar to those of arse-smart, except that they are much milder, and therefore more applicable to general use. It makes an excellent fomentation for all inflamed and foul ulcers, particularly if boiled with urine. Taken in decoction, it is an excellent remedy for the asthma, and taken freely, excites perspiration, breaking up fevers, colds, &c.

HEMLOCK TREE. The boughs.

The boughs of this well known tree may be employed with advantage for fomentations and sweating in colds, rheumatism, fevers, &c. I have known many lives saved during an epidemic fever, by giving the decoction internally, and fomenting externally. The oil is also used in colds and coughs.

HORSE RADISH.—*Cochlearia Armoracia*. The root.

Is well known, chiefly cultivated in gardens, and grows wild in wet grounds, and about old ruins.

The medicinal effects of this root are to stimulate the solids, and promote the fluid secretions; it seems to extend its action throughout the whole habit, and affects the minutest glands. It is greatly recommended in dropsies, particularly those that succeed fevers; when it should not only be taken internally, but applied to the feet, and elsewhere, to quicken the action of the vessels. In paralytic complaints, horse radish has often been applied with advantage to the affected parts, as a stimulant remedy. Horse radish has been found beneficial in chronic rheumatism, asthma, and all diseases of debility and torpidity of the blood; and should be eaten freely with the food. When steeped in vinegar during a fortnight, it is said effectually to remove freckles on the face. A syrup made by boiling scraped horse radish in brown sugar, is an excellent remedy in the decline of colds and pleurisies, to promote expectoration and remove hoarseness.

HIGH CRANBERRY, or CRAMPBARK. The bark.

Grows in swamps, from six to ten feet high, shrub like, leaves resemble a goose's foot; flowers white, in clusters, berries in clusters, turn red after frost comes, and remains through the winter. The berries strongly acid, and the bark bitter.

Crampbark, is a powerful antispasmodic, and is very effectual in relaxing cramps and spasms of all kinds. A tincture of it may be made in wine by infusing an ounce of the dried pulverised bark in a quart of wine: dose a wine glass twice a day. A decoction answers the same purpose, and may be most convenient in cases of emergency.

HYSSOP. The herb.

The leaves of hyssop have an aromatic smell, and a warm, pungent taste; they are particularly recommended in humoral asthma, coughs, and other disorders of the chest and lungs; being supposed greatly to promote expectoration. The leaves are of great service when applied in cataplasms to bruises, the pain of which they speedily mitigate, and at the same time disperse every spot or mark from the part affected.

ICELAND MOSS.—*Lichen Icelandicus*.

This is very common in Iceland, but also grows in abundance in the Northern and mountainous parts of the United States. This lichen is foliaceous, tough, variously divided into blunt lobes, turning in at the edges, and finished with short strong bristles. The shields are large, and of a reddish brown color on the lobes of the leaves. It grows on trees and rocks.

Iceland moss has of late become quite popular as a remedy for consumption, and although its virtues have been considerably overrated, it is undoubtedly a valuable medicine in pulmonary affections. It is extremely mucilaginous, and to the taste is bitter and somewhat astringent; its bitterness, as well as the purgative quality it possesses, when fresh, are in a great measure dissipated by drying, so that the inhabitants convert it into a tolerably pleasant food. An ounce of this moss boiled a quarter of an hour in a pint of water yields seven ounces of a mucilage as thick as that procured by the solution of one pint of gum arabic in three of water.

Prepared in a syrup, it is an efficacious remedy in consumptions, coughs, dysenteries, and diarrhœas. In dysentery, particularly, it is very successful, after cathartics and emetics, and it may be conjoined with opium. For a decoction, an ounce and a half may be boiled for a quarter of an hour in a quart of milk, of which a tea cupful may be drank frequently in the course of the day. If the milk disagree with the stomach a simple decoction, or syrup may be used. It is sometimes combined with hyssop, hoarhound, wild cherry, and butternut bark, and made in a syrup.

ICE PLANT.—*Erystallinum*. The root.

This plant rises about six inches in height, is white, pellucid, and so tender that when handled it dissolves and melts like ice in the hand; the stalks and leaves are like frozen jelly. It grows in the woods in New-Jersey, and many other parts of the United States, and is found in September as white as snow.

The root has been found to be an almost infallible remedy for fits in children, and is called fit root by the people in the country. In some parts they dilute the juice in cold water, as a remedy for sore eyes. The root should be dried, pulverized, and bottled up. Children troubled with fits may take from half a tea spoonful to a whole one, three mornings, both before the full and change of the moon, in a tea cupful of peony root; or in valerian tea for epilepsy in adults. The expressed juice mixed with rose water, will cure the most inveterate inflammations of the eyes; observing such other evacuations as are necessary.

INDIAN HEMP.—*Spirca Trifoliata*. The bark of the root.

Sometimes called wild buckwheat. It rises three feet high; the stalk is bare for a foot, then throws out many branches; leaves numerous and ovate; flowers whitish, similar to buckwheat, which terminate in seed pods resembling a cucumber. It is perennial, and grows in meadows and low woods in most parts of the United States.

This useful plant is emetic, cathartic, sudorific, diuretic, and is an excellent pectoral; and has been found beneficial in curing rheumatism, dropsy, and asthmatic cough. The part used is the bark of the root, which should be obtained in April, dried and pulverized. From thirty to thirty-five grains will generally operate both up and down, which may be used as an emetic in intermittents. As a sudorific, six grains may be taken twice a day in a spoonful of cold water. As a pectoral, it may be combined with skunk cabbage.

For rheumatisms and immoderate flow of the menses, it may be taken in

small doses in prickly ash tea. A spoonful of the infusion taken occasionally, is good in whooping cough and prevents straining.

Indian hemp possesses considerable power as a vermifuge. There are several species in different parts of the United States, which are known by different names, as Indian physic, ipecac, dropwort, bowman's root, &c. They all possess similar qualities, though varying in strength.

INDIAN PHYSIC.—*Gillenia Stipulacea*. The root.

This belongs to the same class as the preceding, and is principally found in the States west of the Alleghany, where it is known by the name of western dropwort. This species is smaller than the former.

The root is dark brown, with long and large fleshy fibres; several stems, from two to three feet high, slender, smooth, brittle, reddish, branched; leaves large, alternate, sessile, with three leaflets, and two large appendages; flowers in terminal scattered shafts, and white. Roots scentless; taste bitter.

This, like the other species, is emetic, cathartic, and tonic; but the *stipulacea* is by far the best and strongest. This is highly esteemed and generally used in the Western States. The bark of the root, which is collected in the fall, is the part principally used. The dose is from fifteen to thirty grains of the powder. It operates often as a cathartic. In small doses it becomes a tonic, and is used in intermittents.

AMERICAN IPECACUANHA. The root.

Also Bowman's root; wild apple tree root. This is another species of the preceding class. It grows plentifully in meadows and in low woods, in the State of New-Jersey.

Its qualities and doses are the same as those of the two preceding plants.

INDIAN TURNIP.—*Aunum Tryphillium*. The root.

Also called dragon root, wake robin, wild turnip, &c. This valuable plant grows in almost every part of the United States, and is known and used by most country people. The root is perennial, round, flattened, tuberous; skin dark, loose, and wrinkled. The stalk about six inches high, purple, from which grows one leaf stem, with three long, large, smooth leaves, pale beneath, with regular parallel nerves; under these the sheath and flower appear, and afterwards the head containing the berries, which, when ripe, are of a bright scarlet color. It grows in meadows and swamps, and along the sides of fences and old logs.

The whole plant, and particularly the root, is violently acrid, pungent, and even caustic to the tongue, but not to the skin. It burns worse than Cayenne pepper. It is powerfully acrid, stimulant, restorative, expectorant, carminative, and diaphoretic. The fresh roots are too caustic to be used internally, unless much diluted with other articles; and when dry they lose much of their power, unless they have been dried very quickly, or kept buried in sand or earth.

It must be used in substance in milk, molasses, honey, or comfrey syrup, and such like, since it does not impart its pungency to any liquor; or the fresh roots must be grated, or reduced to a pulp, with three times its weight of sugar, thus forming a conserve, which may be taken in doses of a tea spoonful three times a day, for coughs, colds, &c. In these forms it is used for flatulence, cramp in the stomach, asthmatic and consumptive affections. It quickens circulation, and is a useful stimulant in cold phlegmatic habits. It has been found beneficial in lingering decay, debilitated habits, great pros-

tration in typhoid fevers, deep-seated rheumatic pains, or pains in the chest, chronic catarrh, &c.

WILD INDIGO.—*Baptista Tinctoria*. The root.

Also called yellow indigo bloom, indigo weed, horsefly weed, yellow broom, clover broom, rattle bush, &c.

The root is large and woody, blackish outside, yellowish within; stalks two or three feet high, round and smooth, yellowish green, with black dots, branches thin, with small leaves; leaves alternate, with three leaflets, sessile, of a bluish green; flowers bright yellow, in small loose spikes at the end of branches, pea-like, but smaller, succeeded by an oblong pod of a bluish black color.

This plant has the appearance of a small shrub, or broom; it dyes a kind of blue like indigo. It is often used to keep flies off from horses, as insects appear to avoid it. It is found all over the United States, in woods and on hills, and prefers dry and poor soils. The whole plant, but particularly the root, is nauseous, sub-acrid, and sub-astringent. It is active and dangerous in its fresh state, if taken internally, but loses much of its action by long keeping and boiling.

Its properties are astringent, antiseptic, febrifuge, diaphoretic, purgative, emetic, and stimulant. It is a valuable remedy for all kinds of ulcers, even the foulest, either gangrenous, eating, or syphilitic; also for almost every sore, such as malignant ulcerous sore throat, mercurial sore mouth, sore nipples, chronic sore eyes, painful acrid sores, and every ulcerous affection. It must be used externally in strong decoction as a wash, or in fomentation; also in poultice, lard, or cream.

This is one of the most powerful vegetable antiseptics in putrid disorders, and internal mortification; it may be given internally at the dose of half an ounce of a decoction made with twenty times its weight of water. It stops gangrene, has cured scarlet fever sore throat, inverted womb, and sometimes putrid and typhus fevers.

JERUSALEM OAK.—*Chenopodium Anthelminticum*. The herb and seeds.

This is a small bushy plant, rising about eighteen inches in height, full of branches with few small leaves, deeply jagged on the edges, resembling the leaf of an oak, (whence it derives its name,) which are reddish at first, on the underside, and afterwards become of a yellowish green: from the middle of the branches upwards grow small yellow flowers. The whole plant has a powerful smell, and a bitter taste, with a good deal of aromatic acrimony. The seed it produces is emphatically known by the name of worm seed, and it grows in most parts of the United States.

It is carminative, pectoral, antispasmodic, emmenagogue, and vermifuge. For destroying worms, the expressed juice may be used in doses of a table spoonful, for a child two or three years old; more commonly, however, the worm seed is employed, reduced to a fine powder and mixed with syrup. Of this dose, a table spoonful may be taken every morning, for a child, keeping him without nourishment for some hours; after supper another dose is to be administered. It is sometimes necessary to continue this course for several days, and great numbers of round worms are frequently discharged after a few doses.

The expressed juice, mixed with honey, and taken night and morning, has been found beneficial in giving speedy relief to patients subject to asthma, wheezing, and shortness of breath. To promote the menses, a large draught of the decoction may be taken at bed time, with a spoonful of rum in it.

JUNIPER.—*Juniperus Communis*. Berries and tops.

This is an evergreen shrub, about four feet high; leaves numerous, long, sharp pointed, of a deep green, three standing together, without foot-stalks; flowers inconspicuous. It grows in abundance in the State of New-York, on the banks of rivers; flowers in June, the berries are ripe in August and have a strong pleasant smell, and a warm, pungent, sweet taste.

The berries and essential oil are chiefly used, and are a powerful diuretic, carminative, stimulant, diaphoretic, and are efficacious in dropsical and flatulent complaints. The berries are most commonly used in the form of an infusion, to which a little gin is added as a diuretic drink in dropsy. The oil imparts its properties to spirits. For wind in the bowels, three or four drops of the oil may be taken twice a day on sugar.

The peculiar flavor and well known diuretic effects of Holland gin, are owing to the oil of juniper.

JOHN'S WORT.—*Hypericum Perfoliatum*. Leaves and flowers.

This plant rises two feet high, with spreading branches from the sides to the top of round, hard, upright stalks, with two small leaves set one against the other throughout, of a deep green color: flowers which stand on the heads of the branches, are yellow, five leaved, with many yellow threads in the middle, which, when bruised, yield a reddish juice like blood, and produce small round heads containing the seed, which are black, and smell like resin. The root is hard, with many fibres, of a brownish color. It grows in meadows, pasture grounds, church yards, &c., and flowers the last of June.

It has been found beneficial in promoting urine, curing of ulcers, immoderate flowings of the menses, diarrhœa; removes low spirits, relieves hysterical, hypochondriac, and maniacal affections. For diarrhœa, or flux, put two ounces of the flowers in a quart of good brandy, and, after giving a dose of rhubarb, the patient may take a wine glass of the brandy night and morning till well. It may be combined in an ointment with bitter-sweet, elder, and stramonium, for dispelling hard tumors and caked breasts.

A tea made of this herb, relieves the lungs in cases of obstructed respiration; especially if joined with sage.

JALAP.—*Convolvulus Jalapa*. The root.

The dried root of Jalap is imported from New-Spain, in thin transverse slices; solid and heavy, of a dark grey color. It has little smell, and a bitter taste.

Jalap is a safe and efficacious purgative, and, except when given in large doses, is not heating to the system. It is generally used as an adjunct to calomel. The dose of the simple powder is commonly from one to two scruples.

KINO. The gum.

This substance is the produce of Africa. It has a dark red color, and has an astringent taste, with a degree of bitterness. It is soluble in water and in alcohol.

Kino is a powerful remedy in obstinate chronic diarrhœa and dysentery; in all passive hæmorrhages, especially from the womb; in the whites; and in diseases arising from laxity of the solids. It is exhibited internally, in doses of from six to fifteen grains, in substance, or dissolved in

diluted alcohol. Externally it is applied as a styptic to check bleeding from wounds, and other profuse discharges.

LEMON TREE.—*Citrus Medica*. The fruit, peel, and oil.

The juice of lemons is similar to that of oranges, differing only in containing more acid.

Lemon juice is one of the most cooling and antiseptic vegetable productions, and is of great utility in medicine. It is of great efficacy in the sea scurvy; and affords a grateful and cooling beverage for febrile patients; but it should be remarked, that this acid must never be freely given to persons whose chest or respiration is affected. Saturated with common sea salt, it is recommended as possessing great efficacy in dysentery, remittent fever, the dry belly-ache, putrid sore throat, and as being a specific in diabetes and lientery.

Lemon juice alone, given freely, cured a number of cases of yellow fever, when it last raged in New-York.

Lemon juice is also an ingredient in many pleasant refrigerant drinks, which are of great use in allaying febrile heat and thirst, such as lemonade. The acid of lemons is a well known antidote against narcotic vegetable poisons, and among these in particular against opium.

The yellow peel is an elegant aromatic, and is frequently employed in stomachic tinctures and infusions.

WILD LETTUCE.—*Lactuca Virosa*. Leaves and extract.

This plant rises four feet high; it has three kinds of leaves; those proceeding from the root are slightly toothed; those from the stem are cut into pinnated lobes; and others attached to the flower stalks are arrow-shaped, pointed, entire: the flowers are yellow and small. It grows wild about the hedges, rough banks, and along the sides of high meadows. The leaves are milky, and smell like opium, and resemble it in some of its effects, and its narcotic power, like that of poppy, resides in a milky juice.

An extract prepared from the expressed juice of the leaves of this plant, gathered when in flower, is recommended in small doses. In dropsies of long standing, proceeding from visceral obstructions, it has been given to the extent of half an ounce a day. It is said to agree with the stomach, to quench thirst, to be gently laxative, powerfully diuretic, and somewhat diaphoretic. Plentiful dilution is allowed during its operation. It helps its operation to take it in colush tea.

GARDEN LETTUCE. The herb.

This plant is valuable as an article of diet, abounds with milky juice, which possesses all the characteristic properties of the opium of the shops, and may be procured from it in sufficient quantity to repay the labor. It has been used with advantage in allaying the pain of chronic rheumatism, and colic; in checking the frequent stools accompanying diarrhœa; and in allaying coughs.

LIFE EVERLASTING.—*Gnaphaleum Polycephalum*. The herb.

Also called white balsam, Indian posey.

Grows in old fields and on dry and barren lands, from one to two feet high, with small narrow leaves; branches towards the top; flowers in a cluster, white and furzy, and continue on during the winter; it has a pleasant aromatic smell.

The blossoms chewed, and the juice swallowed, proves a sovereign remedy for most kinds of sore throat. Drank in a warm decoction produces diaphoresis in fevers; it is excellent in quinsy, weak lungs, fluor albus, consumption, &c. It forms an excellent fomentation in cases of quinsy sore throat, pleurisy, &c.

LIFE ROOT.—*Rad. Vilæ*. The whole plant.

This excellent plant, but recently discovered, rises from one to two feet high; leaves on single radical leaf stems; heart-shaped, large, and serrated; flowers yellow, and the root small and fibrous. It grows on the banks of meadows, in low rich soil, and has been found in Genessee, and several other parts. It is sometimes called *new weed*.

This valuable plant has been found a certain remedy for all complaints of the gravel and pains in the chest, beginning consumptions; is a febrifuge, and powerful diuretic, relieves melancholy and causes cheerfulness.

For the gravel, the patient may take a tea cupful three times a day of the following tea: pour one quart of boiling water on two ounces of the dry root and leaves. In lowness of spirits, melancholy, and pain in the chest, the patient may take a tea spoonful of the powdered root three times a day, with the tea; continuing the dose till well.

LUNGWORT.—*Pulmonaria Officinalis*.

This is the kind of lichen, thin shell, or skin, which grows on the bark of the white oak tree, resembling the lungs, from whence it takes its name. Lungwort may be found in almost every part of the United States.

It possesses the same properties as the Iceland moss, and other lichen; indeed, they all belong to one family, and may be used with benefit in consumptions, &c.

LIVERWORT.—*Hepatica Triloba*.

Root perrennial, with long brown fibres; leaves radical, on long hairy stems, somewhat feathery, and stand through the winter; leaf divided into three rounded blunt lobes; flowers terminal, drooping at first, spreading when unfolded, of a pale yellow or blue. It is found in all northern latitudes, and is common in the woods, hills, and mountains of the United States, from New-England to Kentucky.

Its taste is nearly insipid, but a little astringent and mucilaginous. It is sub-tonic, sub-astringent, deobstruent, pectoral, and demulcent. It was formerly used in fevers, liver complaints, indigestion, vitiation of the humors, hypochondria, &c. It has lately been brought into notice in America, for bleeding at the lungs, consumption, coughs, &c., and is taken in the form of a strong infusion, drank cold, or in a syrup. It is serviceable in hypochondriac complaints, in form of tea, which may be drank in any quantity. It has no effect on the lungs beyond that of a mild demulcent and astringent.

LOBELIA INFLATA.—INDIAN TOBACCO. Herb and seeds.

This is an annual American plant, found in great variety of soils throughout the United States. The leaves oblong, slightly serrated, sessile, alternate, on the upper surface numerous tubercles; stems branched; blossoms solitary, in a kind of spike, pale blue. Common in dry fields, and flowers in August.

The leaves, when chewed, communicate to the mouth a burning pungent sensation, which remains long in the fauces, and occasions a copious dis-

charge of saliva. If they are held in the mouth for some time, they produce giddiness and pain in the head, with a trembling agitation of the whole body, and at length nausea and vomiting.

Lobelia is a prompt and thorough emetic, attended with stimulant antispasmodic effects during its operation. It vomits very kindly, without straining, and performs the work more effectually than any other medicine with which I am acquainted, especially where there is a cold slime or phlegm in the stomach, which it breaks up and removes from the bottom. It is, therefore, conspicuously beneficial in breaking up intermittents, and similar disorders, which are caused by the prevalence of cold phlegm in the stomach. Indeed, in all fevers requiring an evacuation of the stomach, this cannot be given amiss, and will seldom fail, when properly assisted, of removing their cause, and breaking them up in the commencement. Its value is increased in febrile complaints, by its creating a profuse perspiration, along with its emetic effect, thereby relaxing the constriction on the surface, and restoring a free circulation, so necessary and desirable.

Lobelia possesses great antispasmodic power, and has proved eminently serviceable in colics, spasms, and cramps, where emetics and antispasmodics were indicated; and it has often afforded relief in chronic rheumatism. In asthmatic affections it has manifested great efficacy in clearing the passages, and has often proved more beneficial than every other medicine in this distressing disease.

The prejudices that have been excited against this article, and the abuse which has been heaped upon it, have all arisen from ignorance of its value. None who have witnessed its effects, when properly used, can condemn it, honestly and sincerely. It is as innocent and safe as any other emetic; much more so than emetic tartar; and I think there is not much doubt but that it is more effectual than all others. From its irritating quality it cannot be dangerous, because as soon as a certain degree of irritation is produced upon the coats of the stomach, it is ejected, be the dose large or small. A distressful sickening sensation sometimes shoots across the stomach, it is true, when lobelia has been received into it, but it is only temporary, and passes off without any ill consequences. The bug-bear stories of its mortal effects which have been so industriously circulated by a certain class of physicians, have no foundation but in malice and vexation, and are now getting quite stale. I strongly suspect the cause of the malignant opposition which most of the faculty have manifested to the use of lobelia, to be simply the fact that its virtues were discovered, like those of most of the valuable medicines in use, without the pale of their exclusiveness.

Lobelia may be administered in powder of the leaves or seeds; or in tincture of the herb. Of the pulverized seeds or leaves, a tea spoonful may be given in warm water, in two portions, the second within ten minutes after the first, whether it has operated or not. Of the saturated tincture, from one to four tea spoonful may be given. Plenty of diluting herb teas should be drank during the operation. The saturated tincture is obtained by putting as much of the herb in tincture as the spirits will cover.

Some physicians give cayenne pepper, or decoctions of bayberry, hemlock bark, &c., as preparatory to the lobelia emetic; and it may be advantageous; but I have found it to answer the designed purposes very well without these, and, therefore, seldom give any thing more than some aromatic and diaphoretic herb drinks during vomiting.

LADIES' SLIPPER.—*Cypripedium Luteum*. The root.

Also moccasin flower, yellow umbil, male mervine, nerve root, &c. There are three or four species of ladies' slipper, as the white, red, and yellow, from the color of their flowers; but their qualities are the same.

Grows from one to two feet high, and sometimes has leaves all the way up; the flower is in the form of a purse or round bag, with a small entrance near where it joins the stalk, and is something like a moccasin or slipper; the roots are fibrous and thickly matted together. It is common in the hills and swamps of New-York, and is found throughout the United States. The roots have a pungent mucilaginous taste, and a peculiar smell, somewhat nauseous.

Ladies' slipper root is a sedative, nervine, and antispasmodic, and a substitute for valerian in all cases. They produce beneficial effects in all nervous diseases and hysteric affections, by allaying pain, quieting the nerves, and promoting sleep. It is also used in nervous head-ache, epilepsy, tremors, nervous fevers, &c. It is preferable to opium in most cases, having no baneful nor narcotic effects. The dose is a tea spoonful of the powder, diluted in sugar water, or any other convenient form. It may also be used in decoction, or formed into an extract. As with valerian, the nervine power is increased by combination with mild tonics.

LAVENDER.—*Lavendula Spica*. Flowering spikes.

Lavender is a small perennial shrub, a native of the south of Europe, but frequently cultivated in our gardens for perfume. The flowers of both have a fragrant agreeable smell, and a warm, pungent, bitterish taste. There are two varieties; the broad leaved sort is the strongest in all respects, and this only is used in the distillation of the oil called oil of spike.

Lavender is considered as a warm stimulating aromatic. It is principally used as a perfume.

BROAD LEAFED LAUREL.—*Kalmisa Latifolia*. The leaves.

This plant kills sheep and other animals. The Indians use the decoction to destroy themselves. The powdered leaves are employed with success in scald-head, and in certain stages of fever. A decoction of it used for the itch, but it should be cautiously applied. In syphilis this plant has seemed useful.

WHITE POND LILY.—*Nymphæ Alba Aquatica*. The root.

This grows in ponds and wet grounds throughout the United States, and is pretty generally known. The leaves lie on the water; blossoms yellow; root as large as a man's leg, knotty and spongy, of a yellow color outside and white within.

The root is emollient, demulcent, cooling, and is good in uterine fluxes, gleet, and whites. They are applied externally to scrofulous tumors, will ease pain, and promote suppuration. For gleet and whites, take the expressed juice of this root, and to every pint of it, add half a pint of port wine, and four ounces of sugar. Of this the patient may take a large tea cupful four times a day.

The root roasted in ashes, and applied to wounds from bruises, nails, &c., is very good to draw out substances, and allay inflammation. A poultice of this root, cohush root, and slippery elm bark, all pulverized and mixed together with cold water, will discuss white swellings: it should be changed three times a day; giving the patient at the same time internal cleansing remedies.

LIQUORICE.—*Glycyrrhiza Glabra*. Root and extract.

This is imported from the south of Europe, and considerably used for medicinal purposes.

Liquorice root is a pleasant demulcent, and possesses gentle deterging qualities, which render it an excellent medicine in coughs, hoarseness, asthma, &c., for lubricating the throat, softening acrimonious humors, and affording relief to the organs of respiration. But with this intention it ought to be taken as a diet drink in considerable portions, by way of infusion. This plant has been found in the State of Vermont and on the Ohio river.

LEATHERWOOD.—*Dirca Palustris*. Bark, berries, and root.

Also mosswood, rope bark, leatherbush, &c. It grows in swamps, and is well known from its tough bark. The bark has a peculiar nauseous smell. The decoction and extract are bitter, but not acrimonious.

It is emetic, cathartic, epispastic, expectorant, &c., and the berries are narcotic. The fresh root and bark in substance, at the dose of five to ten grains, produce vomiting, with a sense of heat in the stomach, and sometimes acts as a cathartic also. They are an active and dangerous medicine, to which less acrimonious substances ought to be preferred. Applied to the skin they produce blisters in thirty hours. The berries produce nausea, giddiness, stupor, &c., like other narcotics. It is expectorant and sudorific in very small doses.

MAIDENHAIR.—*Adiantum Pedatum*. The herb.

This plant is found in deep woods and rich soil, throughout the United States. The root is large, fibrous, and brown. Stalk about a foot high before it branches, of a chestnut color, shining and smooth; branching into two, each branch bearing several long leaves resembling bark or fern.

Maidenhair is expectorant, mucilaginous, and sub-astringent. It is used in decoction or syrup. It is much esteemed throughout Europe, although little known in America. It is found useful in all coughs and hoarseness, also in asthma, and tickling of the throat, and even in pleurisy and all disorders of the chest. It promotes the secretions, strengthens the fibres, and helps the cure of jaundice. It is a very good vehicle and auxiliary for pectoral remedies, and even cathartics. Liquorice may be added to the decoction, to render it more efficient. Influenza is often cured by using this syrup; and it has the advantage that it may be taken in an unlimited dose.

MANDRAKE, or MAY APPLE.—*Podophyllum Peltatum*. The root.

This well known plant rises from one to two feet high, branching into two stems, each bearing on its top two large umbrella-like leaves; flowers yellowish, producing a large fruit, something like a lime, from whence it derives its name of yellow May apple. The roots are sometimes as large as the little finger, very long and milky. It grows on uplands, in meadows and woods.

Mandrake root pulverized, is one of the best native emetics and purgatives which this country affords. It purges thoroughly and effectually in average doses of twenty grains. A common dose will often vomit, but in the gentlest manner; and in a larger dose it vomits pretty certainly and effectually. Its cathartic operation is generally slow, often remaining twenty-four hours, and sometimes it produces considerable distress, particularly if the stomach is very foul; but this is more than compensated by the thorough and cleansing manner in which it performs its work. It is usually given in a little cold water, on going to bed. It may be combined with aromatics to render its action milder, or with more active cathartics to quicken its operation.

[The extract of mandrake is the best form in which this valuable medicine

can be employed. It does not produce the pain and griping effects that are sometimes occasioned by the pulverized roots.]

As an anthelmintic, it often destroys worms, and is used by the Southern Indians for that purpose.

The best time for gathering mandrake root is in autumn, after the tops have withered.

MANROOT, or BINDWEED.—*Convolvulus Panduratus*. The root.

Also called man-in-the-ground, wild potatoes, wild rhubarb, mechameck, potatoe vine, &c.

Is common all over the United States, in poor, loose, sandy soils, upon glades and thickets. Its top is weak and trailing, running along the ground much like a grape vine, and set with large triangular leaves; flowers, which grow on long stems from the axilla of the leaves, are large, bell-shaped, and whitish, with a purple tinge. The root is very large, hard, yellowish, from two to four feet long, as thick as the arm, milky inside, running deep into the earth, and often branched below.

Its properties are cathartic, diuretic, and pectoral. It acts like jalap, rhubarb, or scammony, at a large dose, when given in substance; but the extract from the fresh root is more efficient, and is a mild cathartic in a dose of ten or twelve grains. It is often used by the Indians. As a diuretic it is useful in gravel, strangury, dropsy, &c.; it enables to evacuate small calculous substances, and may be taken in substance or decoction. As a pectoral it has been used for consumptive coughs, and asthma; a syrup is made of it with skunk cabbage is used for that purpose.

It is asserted that the Indians can handle rattlesnakes with impunity, after wetting their hands with the milky juice of this root. It should be collected at the end of summer, and if to be dried, ought to be cut in slices.

MANNA.—*Fraxinus Ornus*. Concrete juice of manna ash.

Manna is obtained from a species of ash, and is principally collected in Sicily. The best manna is imported in oblong, light, friable flakes, or pieces of a whitish or pale yellow shade, and nearly transparent. The inferior sorts are moist, unctuous, and of a darker color.

Manna is a mild and agreeable laxative, which may be safely administered to children and the aged, though in some constitutions it is apt to induce flatulence; but this may be remedied by the addition of aromatics. The dose for children is according to their age, from one to three drachms, and for adults, one ounce, or one and a half. Manna is also a useful demulcent and promotes expectoration.

MALLOWS.—*Malva Sylvestris*. Leaves and flowers.

Common, low, running mallows, is an annual plant, growing about houses, in foot paths, among rubbish, and by the sides of roads. It is known by its bearing little cheeses, as they are called.

The whole plant abounds with mucilage, and is very useful, in decoction, for dysentery, urinary complaints, &c. It is often used in emollient cataplasms, clysters, and fomentations.

MARSH-MALLOWS.—*Althea Officinalis*. Root and leaves.

The marsh mallows is a perennial indigenous plant, growing in salt marshes and on the banks of rivers.

Every part of the marsh-mallow, and especially the root, upon boiling, yields a copious mucilage; on account of which it is frequently employed in emollient cataplasms, and by way of infusion. In humid asthma, hoarseness, dysentery, and likewise in affections of the kidneys and gravelly complaints, it is of eminent service; as by lubricating and relaxing the vessels, it procures a more easy passage to the stagnant fluids. It is used with equal advantage externally, for softening and maturing hard tumors, and affords relief in difficult teething.

MARSH ROSEMARY.—*Statice Limonium*. The root.

Also sea lavender, lavender thrift, &c. This plant grows in salt marshes, along the whole sea coast. It rises about a foot in height; leaves lance-like, root large, and five or six inches long, much resembling a red beet; flowers blue and very conspicuous, on long spikes.

The root is a powerful astringent, and antiseptic, and is very beneficial in gleans, whites, diarrhœa, dysentery, and relaxation of the womb and parts. A decoction of these is given and used as a gargle, with success, in cankers and ulcerated sore throats; and the powder sprinkled on any ill-conditioned sore, has a good effect. It is held in high estimation in severe dysenteries, and the putrid sore throat accompanying scarlet fever. For these purposes it may be taken in decoction, and also used as a gargle. In a large dose it operates as a vomit; in a smaller it proves a powerful expectorant. The decoction should be sweetened with sugar.

Marsh rosemary is a valuable article in the materia medica, and is much used as a domestic medicine, for sore throats, &c., in the Eastern States. It is one of the most powerful antiseptics known.

[It is as near a specific in dysentery as any medicine can be; the best manner of giving this medicine is to boil it in milk; an ounce of the dried root to a pint of milk; a table spoonful may be given every hour in bad cases; it may be given oftener if there is blood passing from the bowels.]

WILD MARJORAM.—*Origanum Vulgari*. The herb.

Has a creeping root under ground, from which shoot up several square, brownish, hard stalks, with small dark green leaves, like those of sweet marjoram, but broader. At the top of the stalks stand tufts of flowers, of a deep purplish color. It grows plentifully in the borders of cornfields, and in copses.

Wild marjoram is a powerful diaphoretic and sudorific, stomachic and emmenagogue. It is used in decoction for creating a sweat, and for bringing down obstructed menses.

Sweet marjoram possesses nearly the same properties, and may be used for the same purposes.

The powder of the herb sweet marjoram, snuffed up the nose, powerfully provokes sneezing. Oil, commonly known as *Origanum* oil, is made from it, which is warming and relaxing to stiff joints.

MARIGOLDS.—*Calendula Officinalis*. The herb.

This is cultivated in gardens, and is sometimes used as a domestic medicine for children. It possesses much the same qualities as saffron, only in an inferior degree. It is used to keep out eruptions.

MASTERWORT.—*Imperatoria Ostruthium*. The root.

This aromatic plant rises about two feet in height. The root is perennial, large, succulent, and tapering; the stalk striated and round; leaves three together, each divided into three lobes, and the stem sheathed where it joins the stalk; flowers umbelliferous. It grows on high rich soils, in most parts of the United States.

The root is a warm aromatic, a salivant, expectorant, and laxative. Held in the mouth it excites spitting; infused in water, sweetened with honey, it promotes expectoration, and has been found beneficial in the colic, and flatulent disorders of the bowels; it is good to promote the menstrual discharge, helps digestion, asthma, colds, disorders of the brain, catarrh, palsy, apoplexy, and ague. A drachm of the powdered root may be taken in wine at a dose; or it may be taken in infusion, freely.

MAYWEED.—*Cortusa Fatida*. Leaves and flowers.

Sometimes called wild camomile.

This herb rises two feet high; leaves ovate; flowers yellow, resembling camomile flowers, but smaller. It grows by the road sides in low grounds.

The leaves are a powerful sudorific, and answer all the intentions of camomile flowers, except that they are inferior in strength. In fevers and common colds, where perspiration is necessary, these may be employed to good advantage.

MEADOW SAFFRON.—*Colchicum*. The root.

This root, and preparations from it, have been employed by the faculty in many diseases. It possesses great power, but it is uncertain and unsafe, from the variability of its strength; the root in autumn is almost inert, but in the beginning of summer an acrid poison. In large doses it is a deleterious, acrid narcotic; in smaller ones a cathartic and diuretic. The German physicians have celebrated its virtues as a diuretic in dropsies, asthma, and some other chronic diseases. Afterwards, infused in wine, it became quite popular as giving relief in the gout. Its use was soon extended to chronic rheumatism, and other painful affections, though with equivocal success.

Colchicum has lately been given most frequently in powder. Five or six grains may be taken three times a day, by an adult. It is always proper to begin a new root with small doses, till you have ascertained its strength, as an over dose might be fatal.

MEZEREON.—*Daphne Mezereum*. Bark of the root.

Also spurge laurel. An indigenous low shrub, growing in woods and shady places, and flowering in the months of February or March. It grows plentifully in the vicinity of the Ohio river. When cultivated in gardens, in a rich soil, it attains to the height of sixteen feet.

This whole plant is so corrosive that six of its berries are said to kill a wolf. The bark of the root, when chewed for some time, is extremely acrid to the taste, exciting an insupportable sensation of burning in the mouth and throat.

Mezereon is a stimulating diaphoretic, and has been found serviceable in chronic rheumatism, and cutaneous diseases. Its principal use is in syphilis, as being particularly efficacious in removing venereal nodes, and disposing ulcerations to heal. It is given in the form of decoction; two drachms of the bark, with half an ounce of liquorice root, being boiled in three pounds of water to two pounds, and four or six ounces of this given four

times a day. It is generally combined with sarsaparilla, when it forms the "compound decoction of sarsaparilla," kept in the shops.

MILKWEED, or SILKWEED.—*Vincetoxicum*. The root.

This plant has a square stalk, rising three feet high; leaves smooth, oval, and milky; flowers yellow, which terminate in a pod resembling a cucumber, filled with a silky down. It grows plentifully by road sides, on sandy grounds. The root is white, and about a foot long.

The root has lately been found effectual in the cure of dropsy. It is a powerful diuretic, sudorific, emmenagogue, and alexipharmic, and has been found beneficial in catarrhal, cachectic, scrofulous and rheumatic disorders, and worms in children.

Boil eight ounces of the dry root to three quarts; of this a gill may be taken four times a day for the dropsy, increasing the dose according to its effect. For other complaints a larger dose may be taken; or the roots in tincture with gin may be used in dropsy and gravelly disorders.

MISLETOE OF THE OAK.—*Viscum Album*. The leaves.

This is a parasitical plant, something like a large bush; it grows on various trees, but that which is found on the oak is chiefly used. The branches are regularly forked, leaves ending obtuse, in pairs; berries white, smooth, globular, and clustered, remaining on throughout the winter, and contain one fleshy seed.

It should be separated from the oak about the last of November, gradually dried, ground into a fine powder, and confined in a bottle well stopped.

Mistletoe has been recorded as an efficacious remedy in epilepsy, by many eminent physicians, both ancient and modern; the reason why it has failed in later trials of some practitioners, is probably because they did not prescribe a sufficient quantity, or because it had been long exposed to the air, when it lost its virtues.

To begin, the dose may be a tea spoonful four times a day, in valerian tea, increasing the dose to two or three tea spoonsful, according to its effects.

MOUNTAIN MINT.—*Melissa Grandiflora*. The herb.

Is a large wild plant, or species of balm, of a very hot taste, growing from two to three feet high, bearing a blossom on the top of its stem, like a small rose.

A tea of this herb has been found very effectual to relieve the gravel, even when other medicines have proved ineffectual. Generally speaking, it is a safe and valuable diuretic and diaphoretic.

MONKSHOOD, or WOLFSBANE.—*Anconitum Napellus*. Herb and root.

This is a perennial plant, found on high mountains; it is common in Germany. It grows from two to five feet high; leaves lobed, deeply lacinated, standing alternate, upon long footstalks, the surface of the leaf of a deep green, the under side whitish; flowers numerous, terminal, of a deep purple, and hood-shaped.

The fresh plant and root are very violent poisons, producing remarkable debility, paralysis, and other consequent symptoms. By drying, their acrimony is almost entirely destroyed. For medical use the root must be gathered before the stem shoots.

When properly administered, it acts as a penetrating stimulus, and gene-

rally excites sweat, and sometimes an increased discharge of urine. On many occasions it has been found a very effectual remedy in glandular swellings, venereal nodes, stiffened joints, anasarca, gouty and rheumatic pains, intermittent fevers, and convulsive disorders.

It is commonly used in the form of an inspissated juice, or extract. It is an unfortunate circumstance, that the powers of this medicine vary much, according to its age, and the heat employed in its preparation. When fresh, its action is often too violent, and when kept for more than a year, it becomes totally inert. Therefore it may be laid down as an universal rule in the employment of this and many other similar medicines, to begin with very small doses, and to increase them gradually to the necessary degree. We may begin by giving half a grain of the extract of monkshood, made up into a pill with any convenient substance, twice or thrice a day, gradually increasing the dose.

MOTHERWORT.—*Leonurus Cardiaea*. Root and herb.

This valuable plant has a hard, square, brownish strong stalk, rising from two to four feet high, spreading into many branches, leaves broad and long, two at every joint, notched about the edge. From the middle of the branches to the tops grow the flowers round about them, in sharp pointed, rough, prickly husks or burs, of a red or purple color. The root sends forth a number of long strings and small fibres, of a dark yellowish color.

Motherwort is an excellent antispasmodic and emmenagogue, and is also a cordial diaphoretic. It may be given in powder, a table spoonful at a dose; or the expressed juice, half a table spoonful, or in infusion. It relieves hysterical symptoms, procures sleep, abates delirium, and allays spasms and risings of the uterus; it is admirably adapted to the cases of those females who suffer pains from tenderness about the lower bowels and loins. It brings on the menses. As a warm cordial, it may be used in low fevers, and in chronic weakness, with nervous affections, cramps and convulsions.

MAPLELEAF ALUMROOT.—*Heucheria Acerifolia*. The root.

Also alumroot, ground maple, splitrock, sanicle, &c.

The root is perennial, yellowish, horizontal, crooked, with few fibres; leaves radical, on long hairy stems, shaped like those of the maple tree; flowers very small, forming a long panicle, occupying half the length of the stem, flesh colored; seeds small and black. There are several species of this plant.

The root of these plants is a powerful astringent, antiseptic, vulnerary and detergent, and is equal to cranesbill. It was used by the Indians, in powder, as an external remedy in sores, wounds, ulcers, and even cancers. It is employed as a styptic in internal and external hæmorrhage, bleeding at the nose, foul or indolent ulcers, wounds and cuts. It is seldom taken internally, the taste being so intensely astringent; but it promises to be useful even in very small doses, where astringents are indicated.

MOUNTAIN DITTANY.—*Cunila Mariana*. The herb.

Also, stonemint, wild basil, sweet horsemint, &c.

Rises about a foot high, stem smooth, yellowish or purple, slender, brittle, with many long branches; leaves large at the base, arrow-shaped, smooth, pale green; flowers small but handsome, of a pink or white color, forming terminal clusters; root perennial, fibrous and yellow. It is found on mountains and dry hills, in all parts of the United States. The whole plant has a warm, fragrant, aromatic, pungent taste and smell.

Dittany is a stimulant, nervine, sudorific, subtonic, vulnerary, cephalic, &c. The whole plant is used, and usually taken in warm infusion. Dittany tea is a popular remedy throughout the country, for colds, head-aches, and whenever it is requisite to excite a gentle perspiration. It partakes of the properties of the grateful aromatic plants, and also of the camomile, while it affords a more palatable drink. Its fragrant tea is preferable to that of sage; it has neither the pungency of mint, nor the nauseous smell of pennyroyal. It relieves nervous head-aches, and hysterical disorders. It is used in the Southern States, in fevers, to excite perspiration, and suppressed menstruations. It is a useful drink in nervous diseases, colics, and indigestion. Externally, it is employed for bruises and sprains; and was one of the plants resorted to for curing the bites of serpents. The essential possesses all the properties of the plant, and a few drops are sufficient to impart them to mixtures.

MOUSE EAR.—*Hieracium Pilosella*. The whole plant.

Mouse ear is a low creeping herb, something like the strawberry, shooting forth small strings and roots, on which grow many small short leaves, set in a round form together, and very hairy, which are milky. The flower stem is three or four inches high, on the top of which is a pale yellow flower, resembling a dandelion. It grows on ditch banks and in sandy grounds, and continues green all winter.

It is antiseptic, detergent, diuretic, expectorant, &c. The juice or decoction, drank twice a day, continually, is good in jaundice; relieves the stone, and gripings in the bowels. It is an excellent gargle for the sore throat, and cleansing to malignant ulcers, canker, &c.

MUGWORT.—*Artemisia*. The herb.

The stalk of this herb rises about two feet in height; leaves deeply divided into several segments, similar to wormwood, pointed, on the upper side, of a deep green, and on the under downy, cotton-like; flowers small, purplish, in spikes, and alternate from the axilla of the leaves. It grows in gardens, near old houses, and along the sides of roads.

The leaves of this plant are deobstruent, laxative, diaphoretic, diuretic, emmenagogue, antihysterical, antispasmodic, anthelmintic and corroborant. An infusion of the leaves and tops open obstructions, relaxes the abdomen, promotes insensible perspiration, urine, and the menses, and is good in removing spasms. It has also been found effectual in destroying worms, and relieves the palpitation of the heart. In agues, after an emetic, a decoction of this herb may be taken constantly till the fever is broken.

MULLEIN.—*Verbascum*. The leaves.

This well known plant grows from three to eight feet high, with an upright stalk, set with large, long, woolly leaves; flowers small, and of a beautiful yellow color, which clothe the extremities of the stem. It grows by roadsides, and on poor land.

The leaves have a bitterish sub-astringent taste, and a mucilaginous quality, and have been found beneficial in catarrhs, diarrhœas, and piles. For internal use the leaves may be boiled in new milk, to which sugar may be added, and taken in dysenteries, &c., at the same time giving aromatics. Persons afflicted with the piles, may sit over the steam of mullein decoction for half an hour, washing the anus with the warm leaves, till the piles come down, when they may be opened. Afterwards some proper ointment will be necessary.

BLACK MUSTARD.—*Sinapis Nigra*. The seeds.

This garden plant is so well known as to need no description.

It is a warm stimulating medicine in cold phlegmatic habits, and where the blood is torpid and inactive; it quickens the circulation and enlivens the system. It is a strong diuretic, and may be used with advantage in dropsies, chronic rheumatism and palsies; also in intermittent fevers. A tea spoonful of the powdered seeds may be taken night and morning.

A poultice of bruised mustard seed, alone, or combined with horse radish, and mixed with vinegar and crumb bread, forms a strong drawing poultice when applied to the soles of the feet, or palms of the hands, to bring the circulation into the extremities, and relieve pain in the head. These may be employed in fever, and many other complaints with great benefit.

MYRRH.—*Myrrha*. The gum.

Myrrh is the produce of a shrub growing in the East Indies. The best myrrh is somewhat transparent, of a uniform brownish, or reddish color; of a slightly pungent bitter taste, with a strong, aromatic, not disagreeable odor, though nauseous to the palate.

In its medicinal effects, this aromatic bitter, when taken internally, is supposed to warm and strengthen the stomach and other viscera; it frequently occasions mild sweats, and, in general, promotes the fluid secretions. Hence it has been used with advantage in cases of debility; in diseases arising from suppression of the urine, or from inordinate discharges, in cachetic habits, and those persons whose lungs and throat are oppressed with viscid phlegm. It is supposed to be useful in malignant and putrid fevers, from its antiseptic quality. For these purposes it should be taken in doses of half a drachm or upwards. The common dose is from twenty to thirty grains. The tincture is often used.

NETTLE.—*Urtica Dioica*. Leaves and seeds.

This common plant is so well known as to need no description.

The leaves of the fresh plant stimulate, inflame, and raise blisters on the part of the skin where they touch; hence when a powerful rubefacient is required, stinging with nettles has been recommended. The juice is astringent, and is good in gravelly complaints, internal hæmorrhage, and spitting of blood. The decoction is good for those who make bloody urine, and for all beginning consumptions. It is asserted that the seeds and flowers of the nettle may with efficacy be substituted for the Peruvian bark, in all febrile affections, especially in tertian and quartan agues. The portion to be given should never exceed one drachm, given in wine; in large doses it induces a lethargic sleep.

NUTMEG. The fruit.

Nutmeg is used in medicine as a grateful aromatic, astringent, and stomachic; hence it is often administered in diarrhœas and dysenteries, in doses from ten to twenty grains in powder, or in larger quantities when infused in port wine. In violent head-aches arising from a debilitated stomach, small doses of this medicine have frequently been found of real service; but, if injudiciously employed, it is apt to affect the head, not unlike opium.

NANNY BUSH. The bark.

The shrub known by this common name, grows in most parts of New-York, and probably throughout the United States. I knew of no other name than the above for it, except black haw.

It rises from five to eight feet high; bark very rough, and of a dark gray; leaves long; berries hang in clusters, and turn black after frost. It grows in marshes and low pastures.

The bark is an excellent tonic, is considered superior to the Peruvian bark, and may be used for all the purposes to which that is applied.

OAK.—*Qaercus Robur*. The bark.

The bark of this valuable tree is a strong astringent, and possesses tonic and antiseptic virtues. White oak bark exceeds in astringency the Peruvian bark, and falls but little, if any, short of it, in its tonic powers. Hence we have a valuable domestic substitute for Peruvian bark, which is successfully employed in hæmorrhages, uterine fluxes, whites, &c. It may be taken in powder or decoction; but the last is preferable. It has been used successfully in intermittents.

In checking gangrene, it has succeeded when Peruvian bark failed. It was given in decoction in very large quantities, and the affected part was constantly kept wet with the same decoction.

OATS.—*Avena Sativa*.

When deprived of their husks and formed into groats, oats are converted into an excellent dish for the infirm and diseased. When ground into meal, and boiled in water, they afford a thick and nourishing mucilage, which with the addition of a few currants, is very wholesome and produces a mildly laxative effect. Gruels or decoctions of groats or oat meal, either plain, acidified or sweetened, form an excellent drink in febrile diseases, diarrhœa, dysentery, &c., and from their demulcent properties prove useful in inflammatory disorders, coughs, hoarseness, roughness and ulceration of the fauces.

Another valuable purpose to which oats are applied, is as a fomentation in inflammatory fevers, pleurisy, &c. They should be warmed or fried in vinegar, and applied as hot as can be borne.

OPIUM. The gum.

Opium is the thickened juice of the white poppy, which is a native of the warm parts of Asia and Turkey. Two kinds of opium are found in commerce, distinguished by the names of Turkey and East India Opium.

Turkey opium is a solid compact substance, possessing a considerable degree of tenacity; when broken having a shining fracture and uniform appearance; of a dark brown color, and becoming yellow when reduced to powder; scarcely coloring the saliva when chewed, exciting at first a nauseous bitter taste, which soon becomes acrid, with some degree of warmth; and having a peculiar, heavy, disagreeable smell. The best is in flat pieces. The round masses are of an inferior quality. It is bad if it be soft, friable, mixed with any impurities, or have an intensely dark or blackish color.

East India opium has much less consistence, being sometimes not much thicker than tar, and always ductile. Its color is much darker; its taste more nauseous, and less bitter, and its smell rather smoky. It is con-

siderably cheaper than Turkey opium, and supposed to be of only half the strength.

Opium when taken into the stomach to such an extent as to have any sensible effect, gives rise to a pleasant serenity of mind, in general producing a degree of languor and drowsiness; the action of the pulse becoming generally softer, fuller, and slower than it was before. It diminishes all the secretions and excretions, except the cuticular discharge, which it frequently augments in a very sensible degree. It excites thirst and renders the mouth dry and parched.

Taken into the stomach in a larger dose, it gives rise to confusion of head and vertigo. The powers of all stimulating causes of making impressions on the body are diminished, and sleep is irresistibly induced. In still larger doses it acts in the same manner as narcotic poisons, giving rise to vertigo, head-ache, delirium, &c., terminating in a state of stupor, from which the person cannot be roused. This stupor is accompanied with slowness of the pulse, and with a stertor in breathing, and the scene is terminated in death, attended with the same appearances as take place in apoplexy.

From these effects of opium in a state of health, it is not wonderful that it should be employed in disease to mitigate pain, induce sleep, allay inordinate action, and diminish morbid sensibility, and in answering these intentions, all its good effects are explained.

But opium is not alone in answering these purposes, and particularly as an anodyne in procuring sleep and allaying pain. The extract and other preparations of hops may be substituted with advantage for these last purposes, having the desired effect, without being accompanied by the deleterious consequences of opium. The extract of hops may be employed where opium disagrees with the stomach.

Opium may be administered with benefit in dysentery, diarrhœa, &c., after the use of gentle laxatives, from its power of allaying the acrid irritation of the bowels, and checking the discharge. In cholera morbus it is preferable to any thing else. It may be used in colics, tetanus, &c. In short, circumstances may occur in almost every disease that may render a pill of opium beneficial.

It is generally given in the form of a pill, by itself, and is more apt to sit on the stomach in this form than in any liquid, but requires rather more time to produce its effects. The requisite quantity is very different in different persons, and in different states of the same person. A quarter of a grain will in one adult produce effects which ten times the quantity will not do in another; and a dose that might prove fatal in cholera or colic, will not be perceptible in many cases of lock-jaw or mania. The lowest fatal dose to the unaccustomed, as mentioned by authors, seems to be four grains; but an excessive dose is so apt to occasion vomiting, that it has seldom time to produce death. When given in too small a dose it is apt to produce disturbed sleep, and other disagreeable consequences; and with some constitutions it seems not to agree in any shape. Often, on the other hand, from a small dose, sound sleep and alleviation of pain will be produced, while a larger one gives rise to vertigo and delirium. Some prefer the repetition of small doses, others the giving of a full dose at once. The soporific effect of a moderate dose is supposed to last in general about eight hours from the time of taking it.

Externally applied, opium alleviates pain, and relieves spasmodic action. Hence its utility in colic, inflammation, and tooth-ache. In the form of clyster, combined with starch, it is of singular efficacy in obstinate relaxes, and it is employed under the same form in other diseases, where its administration by the mouth is inconvenient or impracticable.

The soporific effects of opium may be checked if a proper quantity of vegetable acid be taken with it, or immediately after it. Thus, if an ounce

of pure lemon juice, or twice that quantity of good vinegar, be added to every grain of opium, or to twenty-five drops of laudanum, such a compound will produce a very different effect. Instead of stupifying the head and producing troublesome costiveness, it will not only relieve the bowels but also occasion a degree of cheerfulness never attainable by the use of opium alone, and afterwards induce a composed refreshing sleep.

Opium is often used for the horrid purpose of self-destruction. The alarming symptoms induced by it, are vomiting, delirium, stupor, deep and difficult breathing, convulsions and death. The remedies are, in the first instance, powerful emetics of lobelia, or blood root; white vitriol is frequently used, twenty grains being given immediately in a glass of warm water, and repeated every ten minutes till copious vomitings are excited. Warm water is then to be freely given, together with a smart purgative, joined with a few grains of potash. These should be succeeded by copious draughts of vinegar, lemon juice, buttermilk, or other vegetable acids, or strong coffee, which last appears to be the most effectual antidote.

A principal object to be kept in view, is to produce such a degree of irritation as may counteract the narcotic effects of this deleterious drug. Hence it is very useful to stimulate the nostrils with spirits of hartshorn, and to apply friction with salt over the whole body. When the symptoms of apoplexy come on, the remedy is copious bleeding.

OLIVE OIL, OR SWEET OIL. The oil of the fruit of the olive tree.

The olive tree is a native of the Southern parts of Europe. Its fruit is considerably used as an article of food by the inhabitants of the countries which produce it; but it is hurtful, its oily nature relaxing the stomach.

Medicinally considered, olive oil has lately been found an excellent preventive of the plague, when rubbed over the whole body, immediately after the contagion is supposed to have been taken. The oil, when properly applied, and followed by a considerable degree of friction, occasioned a copious sweat over the whole body, by which it is said the patients were immediately cured.

Olive oil has also been employed with success as an antidote against poison occasioned by the bite of serpents, especially that of the rattlesnake. In several cases apparently desperate, when a few spoonfuls of oil had been swallowed, the violent symptoms instantaneously subsided, and cures were soon effected. In gouty patients, sweet oil rubbed on the pained limb, proves a soothing, safe, and useful application. It is also beneficially employed internally for recent coughs, colds, hoarseness, &c., and is a gentle laxative. It is also directed in large quantities to mitigate the action of acrid substances taken into the stomach. Externally, it is used in frictions, gargles, and in clysters; but its principal use is for the composition of ointments and plasters.

ORANGE.—*Citrus Aurantium.* The fruit.

The juice of oranges is a grateful acid liquor, of considerable use in febrile and inflammatory distempers, for allaying heat, quenching thirst, and promoting the salutary excretions. The sweet orange is to be preferred, as being more mild, and less acid; and it is employed in its most simple form with great advantage, both as a cooling medicine and as an useful antiseptic in fevers of the worst kind. The outer yellow rind has a grateful aromatic flavor, and has been employed to restore the tone of the stomach; it is a very common addition to bitters used in dyspepsia.

PALM OIL.

This oil is obtained from the kernel of the fruit of the palm tree, cultivated in the West Indies. It is of an orange color, of the consistence of ointment, emitting a strong agreeable odor, and very little taste; both of which it loses by long keeping, when it is unfit for use. It is employed chiefly externally, for mitigating pains, cramps, and similar affections, and also for the cure of chilblains. With camphor, palm oil makes a very excellent liniment of the stimulating kind; sal ammoniac added to this, finely pulverized, forms one of the most active and valuable liniments, for discussing indolent tumors, rigidity of the tendons, &c.

PARTRIDGE BERRY. The vine.

Also called squaw vine, winter clover, one berry.

This is a small vine on the ground, with small, round, green leaves, like those of clover, and bearing one red berry in a place. It is green through the winter. It is found in woods, among hemlock timber, and in swampy places.

This is an invaluable plant for child-bearing women. I first obtained the knowledge of its use from a tribe of Indians in the West part of New-York, though not without considerable difficulty and intrigue. The squaws drank it in decoction for two or three weeks previous to, and during delivery, and it was the use of this herb that rendered that generally dreaded event so remarkably safe and easy with them.

It will be seen that this vine forms a principal ingredient in the "mother's cordial." Indeed, it would answer almost as well alone, as combined with the other ingredients.

PEACH.—*Amygdalus Americana*. Leaves, blows, and pits.

The flowers and leaves of the common peach tree are an excellent remedy for worms in children, and I have often had recourse to them when other means failed. A handful of the leaves and flowers, or leaves alone, may be steeped, and the decoction given repeatedly in small doses, followed by a purge, which will usually bring the vermin away. This decoction is said to be effectual in removing urinary obstructions.

Peach pits tinctured in brandy, in proportion of four ounces to a quart, form a powerful tonic in all cases of debilities, fever and ague, &c., and is remarkably efficacious in curing the whites. A tea spoonful of this preparation may be taken three or four times a day.

PENNYROYAL.—*Hedæma Pulegioides*. The herb.

This plant has a small, fibrous, yellowish, annual root; upright stem, with slender erect branches; leaves opposite, small, oblong, rough, and pale beneath; flowers all along the branches, in axillary whorls of six, very small, white with purple edges. Pennyroyal is very common and abundant all over the United States, and grows principally in dry soils. The taste and smell are very pungent, and bitterish.

It is carminative, resolvent, pectoral, diaphoretic, antispasmodic, emmenagogue, stimulant, &c. It is a deservedly popular remedy throughout the country for female complaints, suppressed menstruations, hysterics, &c. It is chiefly beneficial in obstructed menses, and recent cases of suppressions, given as a sweetened tea, and used as a bath or fomentation. It promotes expectoration in the whooping cough, it alleviates spasms, pains in the hips, and the spasmodic or dyspeptic symptoms of menstruations. It is also used

in palpitations, fevers, and gout. It is employed extensively for colds, colics of children, to remove obstruction, warm the stomach, and promote perspiration.

PEPPERMINT.—*Mentha Piperita*. The herb.

Of the different mints, this is one which has the greatest degree of pungency. The leaves have a strong, rather disagreeable smell, resembling that of pepper. They afford an essential oil, rich in the aromatic qualities of the herb.

Peppermint is used as a stimulant and carminative, to obviate nausea or griping, or to relieve the symptoms resulting from flatulence. It is also an excellent stomachic, of great use in wind colics, cramps in the stomach, languors, and hysteric cases, and in vomiting. It is used under the forms of the watery infusion, the distilled water, and the essential oil. This last being dissolved in a due proportion of rectified spirits of wine, and colored with green grass, forms the essence of peppermint of the shops; a fashionable and pleasant carminative, and when taken on sugar, imparts a glowing taste and warmth to the whole system.

PERUVIAN BARK.—*Cinchona Officinalis*.

I shall give a more brief description than is commonly bestowed upon this universal medicine, because, with botanic physicians, it is by no means an indispensable article, as it is with others. In this, however, I would not be understood as depreciating the value of the bark, but merely as intimating that substitutes are found and used in our own country, that answer all its purposes.

There are three kinds of bark in commerce, viz., the common, (which is pale,) the yellow, and the red. The first is considered the genuine.

The tree affording this bark grows wild in the hilly parts of Peru.

The common pale bark is in the form of small quilled twigs, thin, covered with a rough brownish coat. Its taste is bitter and slightly astringent; slightly aromatic, with some degree of mustiness.

The yellow bark has only been introduced since the year 1790. It is in flat pieces, externally smooth, internally of a light cinnamon color; it has a taste incomparably more bitter than the common, with some astringency.

The red is in large thick pieces, externally covered with a brown, rough coat; of a dark red color; taste and smell similar to that of the pale, but the taste rather stronger.

MEDICAL PROPERTIES.—Peruvian bark acts powerfully as an astringent, tonic, and antiseptic, yet these principles will by no means explain all the effects derived from it in the cure of diseases. Many practitioners are disposed to view it as a specific, but it cannot be considered entitled to that appellation; but it is a very powerful remedy of the operation of which no satisfactory explanation has yet been given.

It was first introduced for the cure of intermittent fevers; and in these, when properly administered, it is generally successful. But in latter years, if not formerly, it has so frequently disappointed expectation, that the general confidence in it is shaken. Its failure, however, is probably in a great measure owing to its improper administration, to its adulteration, to its profuse use, and last, though not least, to its being employed alone indiscriminately, uncombined with proper aids. It is now generally given from the very commencement of the disease, without any previous evacuation, or without any thing being done towards the removal of the original cause, which is often a cold slimé in the stomach, or a weak and watery state of the

blood. Until these are first remedied, neither Peruvian bark nor any other astringent tonic can be expected to cure with certainty. It may, by its bracing power, quell the present fit; but the original cause and disposition remaining, the patient continues feeble, and liable to frequent returns of the ague, the cure is retarded, and abdominal inflammation, scirrhus, jaundice, hectic, dropsy, &c., are induced. These effects of the indiscriminate and improper use of Peruvian bark, or of its salts, quinine, have been severely felt throughout this country, within a few years.

Bark has been used with success, after proper evacuations, in continued fevers, in gangrenous sore throats, contagious dysentery, passive hæmorrhage, dropsy, mortification, and similar affections.

It may be exhibited in substance, in fine powder, which is considered the best manner. It is given in doses from five grains to two drachms and upwards, and must be taken in some liquid, as wine, or any spirituous liquor, and if it excite nausea it is combined with aromatics. Neither water nor alcohol extract all the properties of bark.

It is also administered in the forms of infusion, tincture, decoction, and extract, and latterly in a substance composed of the salts of bark and sulphuric acid, termed sulphate of quinine.

From my observation of the use and effects of bark, I conclude that it would generally be attended with far greater benefit, if its exhibition were preceded by proper evacuations of the stomach and bowels; if it were combined with suitable carminatives, aromatics, &c., and, generally, if it were given in a less quantity than is usually prescribed; in a word, if it were administered with some degree of discretion and judgment, instead of throwing it in indiscriminately in all cases.

In intermittent fevers, it is generally given in doses of a scruple or half a drachm, and repeated every two or three hours during the interval of the paroxysm. In remittent fevers it is given with equal freedom. In fevers connected with debility, it is by some considered as a valuable remedy.

The extract is a preparation of considerable power, when properly prepared, and is adapted to those cases where the remedy requires to be continued for some time. It is then given in the form of a pill, in a dose of from five to fifteen grains.

[The properties of this bark appear to be contained in a *salt*, that has of late years been obtained by a chemical process; it is called *sulphate of quinine*. This article has attracted the attention of medical as well as chemical writers, and is brought to a great state of perfection, as regards the preparation and use. It is used for all purposes that the bark has been employed for. The dose varies a great deal; from one to ten, and even twenty grains have been taken, once or twice a day; about an average dose for an adult is from three to six grains two or three times a day; it may be given oftener. This is a very great bitter, and powerful tonic.]

PERSIMON TREE.—*Diospyros Virginiana*. Bark and fruit.

The persimon is a common tree, rising from fifteen to twenty feet, with a smooth bark, and spreading branches. Its blossoms are of a pale yellow, or orange color, and appear in May or June, when the leaves are yet unfolded. The fruit is only ripe late in the fall, and after frost; they resemble a yellow plumb, but are globular. When green, they are most intensely astringent; but when fully ripe and soft, become sweet, and have a fine flavor. This tree is found from New-York to Louisiana, rare North of the 42d degree of latitude, common in the South; more common in the plains than in the mountains.

The bark is astringent, styptic, tonic, corroborant, antiseptic, &c. The

ripe fruit is subastringent, antiseptic, anthelmintic, &c. The inner bark is the most useful part: it is extremely bitter, and a good astringent tonic, useful in sore throat, fevers, intermittents, and dysentery. In this last disorder, it is often united with rhubarb. It is much used in Carolina and Tennessee for intermittents. It is also a powerful antiseptic, and equal to the Peruvian bark. It has been useful in ulcers, and ulcerous sore throat. The doses are the same as common tonics, either in substance or extract.

PIMPERNEL.—*Anagallis Arvensis*. The herb.

Commonly called red pimpernel. It is an exotic plant, originally introduced into America from Germany, by the Germans in Pennsylvania, by whom it is principally cultivated, the knowledge of its virtues being chiefly confined to them.

The plant has weak, square stalks, lying on the ground, with two small and almost round leaves at every joint, one against another, very like chick weed, but no foot-stalks. The flowers stand singly, consisting of five small round pointed leaves, of a pale red color, tending to orange, to which succeed smooth round heads, containing small seed. The root is fibrous and annual.

This herb is highly esteemed by the Germans as an infallible remedy for the hydrophobia. I have witnessed its effects myself, and in every case in which it was employed it proved a complete antidote. Its dose in this disorder is half a table spoonful of the powdered herb, repeating it in eight hours. This will create a profuse sweat usually, and throw out the poison. Its use will be found described in the treatment of hydrophobia.

Pimpernel is also considered valuable in many complaints as a cleansing, anti-poisonous medicine. Formerly it was considered a good remedy against the plague, and other pestilential fevers, being boiled in wine and drank till perspiration was created. It was used inwardly and outwardly for the bites of serpents. Applied as a poultice, it draws out thorns and other extraneous substances from the flesh. The decoction is an excellent wash for cleansing filthy old ulcers.

PINK. The flowers.

This is the common well known garden pink. It possesses considerable medicinal power. The flowers, in decoction, are an excellent remedy for green stools, in children. It is a fine carminative and anodyne for the bowels.

PLANTAIN.—*Plantago Major*. Root and tops.

The common great plantain. There is a smaller kind known as the common sweet plantain, but its properties are the same.

The great plantain has a fibrous root, sending out long oval leaves, irregularly dentated, of a pale green color, and ribbed, and generally from five to nine in number. The flower stem grows from six inches to a foot high, crowned with a spike of clustered flowers which are very small. It grows plentifully in meadows, pastures, by road sides, and around gardens.

This plant is refrigerant, detergent, and subastringent, and is in considerable repute as an antidote to the bites of venomous serpents and insects. For this purpose the bruised leaves should be applied to the wound, immediately, and the fresh juice drank, in doses of half a table spoonful every hour, as long as necessary.

Many people apply the bruised leaves of this herb to slight wounds, inflamed sores and swellings, with a favorable effect. The juice of the plan-

tain, drank for several days is excellent to remove pain in the bowels, and cleanse the blood. It has also been found beneficial in preventing immoderate overflows of the menses, and curing the whites, piles, salt rheum, &c. The juice may be employed, or the plantain may be prepared by boiling it in milk.

An excellent external application for the salt rheum is made by boiling one pound of the dry plant in two quarts of beef brine, and one quart of wine for an hour, when the decoction may be strained and put up for use. The hands and other parts affected with the salt rheum, may be bathed with this lotion four or five times a day, internal remedies being premised at the same time.

Plantain is an ingredient in the valuable bittersweet ointment.

RATTLESNAKE PLANTAIN.—*Plantago Boiciningo*. Root and tops.

This plant rises six inches in height, leaves five inches long, and about two inches broad; has but one small white flower; root about the size of a goose quill, bent and divided into several branches. It grows in meadows and low pasture grounds.

This species of plantain has been found, by the Indians, to be a sure antidote for the bite of a rattle snake. Whether it possesses any greater efficacy for this purpose than the common plantain is uncertain; but this is pretty well established as a specific. When any person has been bitten by a rattle snake, or any poisonous reptile, let the bruised leaves be applied to the wound, and a table spoonful of the expressed juice of equal parts of plantain and boneset, be taken every hour till the danger is over.

PLEURISY ROOT.—*Aselepias Tuberosa*. The root.

Also called orange swallowwort, butterfly weed, flux root, wind root, silk weed, &c.

The root is perennial, large, fleshy, white, crooked or branched; several stalks, either erect, or procumbent, round, hairy, green or red. Leaves scattered on short stems, hairy, lance like and obtuse; flowers of a bright or orange color, appearing in July and August. It rises about four feet high, and is one of the most beautiful American plants. It grows chiefly on poor and gravelly soils, and along streams, and is found all over the United States, but more abundantly in the South.

The root when dry is easily pulverized; it is somewhat bitter, but not unpleasant.

Pleurisy root is subtonic, diaphoretic, expectorant, diuretic, laxative, carminative, antispasmodic, &c. It is a valuable popular remedy, and a mild sudorific, acting safely, without stimulating the body. It is supposed to act specifically on the lungs, to promote suppressed expectoration, and to relieve the breathing of pleuritic patients. It appears to equalize the circulation, and exert a mild tonic effect, as well as a stimulant power, over the excretories. It relieves difficult breathing, and pains in the chest. It often acts as a mild cathartic, suitable for the complaints of children; and is also useful in hysterics, profuse menstruation, dysentery, &c.

But in flatulency, colics, and griping pains in the stomach, its benefits are most conspicuous, in giving quick and effectual relief. It has quickly removed many misnamed Liver Complaints, under my direction. For these it is best given in powder, a tea spoonful every half hour till relief is obtained.

In a low state of typhus fever it has produced perspiration, when other sudorifics had failed. In inflammation of the lungs, and catarrh, it is always

beneficial. It restores the tone of the stomach and digestive powers. It has been given in asthma, rheumatism, syphilis, and even for worms.

An attested publication has lately appeared, in which it is stated that the pleurisy root, taken freely in a strong decoction till it vomits, has cured the bite of a rattlesnake in repeated instances. Taken in that quantity, it creates a profuse sweat, which carries off the poison.

Taken in repeated doses till it creates perspiration, after proper evacuations, it is supposed to be a specific in pleurisy, generally removing it in three or four days.

The common doses are from twenty to thirty grains, of the powdered root three times a day; or a gill of the decoction and infusion every few hours.

POISON VINE, or POISON IVY.—*Rhus Radicans*.

The vine has a slender ascending stem and frequently climbs to the tops of our tallest trees. The flowers, which appear in June, are produced along the course of the smaller branches: they are of a light yellow color, and have a delightful odor. The whole of this plant is a most violent poison, and people in the country are frequently poisoned in the feet, hands, and face, occasioning bloating and ulceration, from merely coming into the neighborhood of it.

This plant has been employed internally with great success in curing epileptic fits, and other convulsions, and in eradicating herpetic eruptions. It has also been given with great success in whooping cough. For this purpose four grains of the extract are to be dissolved in four ounces of syrup, of which one table spoonful may be given the child every third hour; which generally abates the cough. From one leaf (consisting of three folioles or leaflets) to three leaves may be taken in infusion for a dose; commencing on the smallest quantity. But the greatest caution is necessary in its administration, for its effects is very different on different constitutions; some being partially poisoned by inhaling the air by which it is surrounded, while others can handle it with impunity.

Perhaps the only purpose for which this plant should be employed internally, is as a remedy to its external poisonous effects. I remember a circumstance which happened many years since, of which I was an eye witness, which exemplified its effect in this case. A man, laboring in a meadow, was so severely poisoned by the ivy, as to produce a general bloating and disfiguration over his body, which threatened imminent danger. He was advised to take a little of the same ivy internally, as a curative; he did so, and it gave him immediate relief, freeing him from it entirely in two days. The following year the same man was again badly poisoned; and, flattering himself that as so small a quantity as he had taken before, had cured him in two days, a larger quantity would cure him in less time, he ate nearly a handful of the leaves; but the dose was fatal—he died in six days.

[I have no doubt but this medicine will yet be of great use when properly understood. It is a very active medicine, and used by some physicians as an alterative.]

POKE ROOT.—*Phytolacca Decandra*. Root and berries.

Also called garget, skoke, coakum, &c.

This is one of the most common North American plants, well known in New-England. In the Southern States it is called pokeweed. It has a thick, fleshy, perennial root, as large as parsnips; from this rise many purplish herbaceous stalks, about an inch thick, and from four to seven feet long,

which break into many branches irregularly set with large oval sharp pointed leaves, on short stems. These are at first of a fresh green color, but as they grow old they turn reddish. At the joints and divisions of the branches come forth long bunches of small bluish colored flowers, which are succeeded by round depressed berries, of a dark purple color.

The root, which is large and bulbous, is an emetic, cathartic, and discutient. The berries are stimulative, sudorific, and pectoral.

A tincture of the ripe berries in brandy or wine, is a popular remedy for rheumatism and similar affections. The extract or juice of the ripe berries has been employed in scrofula, and cancerous ulcers have been greatly benefited by its application. The juice of the leaves, however, is more effectual. In those rheumatic affections proceeding from the use of mercury, it is said its virtue far exceeds that of opium or even guaiacum. Cutaneous eruptions have often been removed by it.

For the purposes of an emetic, one ounce of the dry pulverized root may be infused in a pint of Madeira wine for a week; two spoonful of this will operate kindly as an emetic.

According to the experience of Dr. Hollock, of Savannah, this plant may be relied on as an effectual remedy for syphilis in its various stages, without the aid of mercury; and he employs it with much confidence, both internally externally in rheumatism and cutaneous eruptions.

The roots are sometimes applied to the hands and feet of the patients in ardent fevers. The extract is used with great efficacy in discussing indolent tumors, and in healing various kinds of ulcers.

For medical purposes the leaves should be gathered in July, before they turn red, when they may be dried and pulverized for use; or an extract may be made from them at this time, by evaporating the expressed juice to a proper consistence. An ointment is also made by boiling the leaves in lard. The root should be gathered in November, cut in small pieces and dried.

POPLAR.—*Populus*. The bark.

The common poplar, or aspen. The bark, in decoction, is said to be a good vermifuge, and is detergent and purifying to the blood.

POPPY.—*Papaver Somniferum*. Flowers and extract.

The common white and red poppy, cultivated in our gardens.

From these may be obtained, by all who will take the trouble, the genuine opium. It may be collected by making an incision in the external rind of the poppy head, as the blossoms fall off, scraping the juice off as it oozes out and drying it in the sun.

Poppy flower leaves make a very soothing poultice to painful inflammatory affections, particularly of the eyes. The country women make great use of them for all the purposes of opium, and particularly for keeping children quiet, and disposing them to sleep. This, however, is a bad custom, being frequently carried so far as to stupify the child, and injure his intellect.

PRICKLY ASH.—*Xanthoxylum Fraxineum*. Bark and berries.

This is a prickly shrub, found in the Northern, Middle, and Western States, in woods, on banks of streams, and in shady situations. This is an inferior species of the tooth-ache tree of the South.

The bark is said to be an effectual remedy for the chronic rheumatism. Taken in full doses, it produces a heat in the stomach, a tendency to perspiration, and a relief to rheumatic pains. Twenty grains can be taken three times a day in powder, or an ounce may be boiled in a quart of water, and

the decoction taken in twenty-four hours. It is generally used in combination with sarsaparilla and other articles forming a syrup.

The berries are esteemed a good remedy in intermittent fevers and in colics; they may be used in spirituous or watery infusion; and in agues, after proper evacuations, may be drank during the interval of the fits, which will generally break them in three or four days.

PRICKLY PEAR.—*Sedum Acre*. The bulbous root.

This curious plant has a large bulbous leaf, or pear, as large and thick as the hand, covered with fine prickles which are almost imperceptible, but very annoying. It grows on rocks, and will exist in the open air without root.

It is said to be of great service in the cure of malignant ulcers of the legs, and efficacious in the cure of corns. Take the pear while green, scrape off the inner soft mucilage, and apply it to the sore twice a day until cured. A decoction of it in milk has been found of great benefit in scorbutic humors, cancers, and scurvy. A large handful of the pear, cut in scales, and boiled in a quart of new milk, may be taken in a dose of a gill every other morning.

PRIDE OF INDIA OR CHINA.—*Melia Azedarach*. Berries and bark of the root.

This tree is an exotic, but is now naturalized in the States of Carolina and Georgia, where it is valued for the beauty of its foliage.

This tree has also obtained considerable repute for its medicinal properties. Dr. Hollock recommends it as a vermifuge of efficacy; and says it is in general use among the planters, often succeeding when common means fail. The common form is that of decoction. A large handful, or about four ounces, of the bark of the fresh root is boiled in a quart of water to a pint, of which from half an ounce to an ounce may be given every two or three hours till it operates. Given in this manner, its operation is powerful, sometimes both vomiting and purging. But in the months of March and April, when the sap is ascending, the bark is much stronger, sometimes causing dilatation of the pupil, stupor, &c., but passes off without any perceptible injury to the system.

The dried berries of this tree have been advantageously employed as an anthelmintic in Carolina; children being allowed to eat them at pleasure.

GROUND PINE.—*Teucrium Champepitys*. The tops.

This is a low, evergreen, hairy plant, shooting forth long slender branches with pine-like leaves, and trailing on the ground. It is often used to decorate churches on the holidays.

Ground pine, in decoction, is detergent, aperient, corroborant, diuretic, and is particularly serviceable in female obstructions and paralytic disorders. It relieves strangury and visceral obstructions; excites and strengthens the womb, acting as an emmenagogue; drank continually, it relieves rheumatic pains, sciatica, palsies, cramps, &c.; good in dropsy, jaundice, and phlegmatic dispositions; and forms an useful wash for foul sores.

PRINCE'S PINE, OR PIPSISSAWA.—*Chimaphila Umbellata*. The tops.

The plant rises from four to six inches high, with a slender stalk, set thick with straight, oval, notched leaves, standing closer at the top. The leaves and plant retain their shape when dried, shrinking very little. Late in the

fall a species of nut is found on the top of the stalk, of the size of a small pea, containing a husky seed. It is evergreen.

It is highly recommended for curing chronic rheumatism, gout, sciatica, and similar affections; for relieving, and if persevered in, entirely curing gravel and gravelly obstructions of the urine; and for all the purposes of cleansing the humors and purifying the system.

A pound of the dried herb may be tinctured in a gallon of spirits, and a wine glassful taken three times a day in the rheumatism. For other complaints it may be prepared in decoction.

PUMPKIN SEEDS. The oil.

The expressed oil of pumpkin seeds is, perhaps, without exception, the most certain and efficient diuretic we possess. I make great use of it. The dose may be from six to twelve drops three or four times a day, or oftener if required. It gives quick relief in cases of spasm upon the urinary passages. It relieves scalding of the urine. When the oil cannot be obtained, the decoction may be substituted.

PUESLAIN.—*Portulaca*. The tops.

This plant is well known to every housewife in the country, growing spontaneously in their gardens, and is used for greens. The stalk is vine-like, growing a foot or more in length, with a smooth, reddish, brittle stem, and fleshy thick leaves.

This plant possesses a large portion of succulent mucilage, is sub-astringent, febrifuge, and useful in gonorrhœa. It should be taken freely in decoction.

QUASSIA.—*Quassia Excelsa*. Wood, bark, and root.

This tree is a native of the West Indies and of South America. It derives its name from a negro named Quassia, who employed it with uncommon success as a secret remedy in the malignant epidemic fevers of Surinham.

Quassia is one of the most intense, durable, and pure bitters known. Its infusion, tincture, or decoction, are almost equally bitter, and yellowish. It is an excellent tonic, antiseptic, and febrifuge; being one of the least heating drugs, it is found very serviceable in exciting an appetite for food; expelling flatulency; assisting digestion, and particularly in removing costiveness when occasioned by weakness of the bowels. It is very beneficial after fevers.

It is usually exhibited in infusion, in proportion of three or four drachms of the wood to twelve ounces of water, of which one or two table spoonful may be taken at a dose and frequently repeated.

QUEEN OF THE MEADOW.—*Spiraea Ulmura*. The root.

Also called meadow sweet.

This beautiful plant rises four feet high; has smooth reddish stalks; leaves long, spear-shaped, and opposite; flowers purple. It grows in hedges, and on the sides of meadows throughout the United States.

The root is a most beautiful diuretic. In suppressions of urine, and in dropsy it is used with great benefit. It has frequently cured the gravel.

For the dropsy, boil eight ounces of the bruised roots in four quarts of water to two; and after the necessary evacuations, commence by giving a tea cupful of this decoction every two hours, warm, increasing the dose gradu-

ally as the patient can bear it, till the water is evacuated. Then brace up with tonics.

In other cases it may be taken less profusely.

RATTLESNAKE ROOT. The root.

This name has been applied to several different plants, in various parts of the United States; but that which I have known by that name, and intend here to designate, has three radical leaf stems the first year, of about six inches in height, with a broad three-cornered leaf to each; the second year a large reddish stalk shoots up, from two to four feet high, bearing seed. The root the first year, (when it should be gathered,) is about the circumference of the little finger, bulbous, and milky. I have found it in different parts of the State of New-York.

This root is preferable to any thing else I have ever known for destroying all kinds of canker in the mouth and bowels, particularly in children. I presume it might be applied to other antiseptic purposes with equal advantage. As much as will lie on a sixpenny piece may be steeped to a wine glassful of water, sweetened, and a tea spoonful given at a time, to children, occasionally washing the mouth with it.

The Seneca snake root is also sometimes called rattlesnake root in some sections of this country.

RHODODENDRON.—*Chrysanthus*. The bark.

This shrub rises near eighteen inches in height; leaves oblong, rigid, reflected at the edges, opposite below, clustered above like a rose, of a deep green color; flowers in umbels, of a bright yellow color. It grows on the mountains in Canada and Nova Scotia. The leaves when dry, have no smell, but a rough, bitter, astringent taste.

It possesses a stimulant narcotic principle, increases the heat of the body, excites thirst, and produces an increased discharge of the secretions and excretions. It is recommended as a sure and speedy cure for the chronic rheumatism. Four ounces of the dry bark may be steeped in six quarts of water for twelve hours, and a table spoonful of this taken every night and morning, increasing the dose according to its effect, to half a pint twice a day. Liquids must not be taken during its operation, lest it induce vomiting.

RHUBARB.—*Rheum Palmatum*. The root.

The true rhubarb is a native of China, and the East Indies; but it is now cultivated in Turkey, Russia, and other countries. The Turkey rhubarb is brought to this country in roundish pieces, perforated in the centre; externally of a yellow color, but on being cut, they appear variegated with reddish streaks. The Chinese rhubarb is imported in long pieces, which are harder and more compact than the Turkey rhubarb.

The general qualities of good rhubarb are, its having a whitish or clear yellow color; being dry, solid, compact, and moderately heavy: brittle, easy to be pulverized, forming a powder of a fine bright yellow, having a bitterish and somewhat astringent taste.

The principal constituent of rhubarb is extractive matter, soluble both in alcohol and water. The virtues of this root are destroyed by roasting, boiling, and in forming the extract.

Rhubarb is justly prized as a mild cathartic, and may be safely given to children, invalids, and delicate women, in doses of from ten to twenty grains, though in irritable, hysterical, and phthisical habits, it is apt to occasion

gripes, and aggravate febrile symptoms: hence it is not so proper to be given in the first stage of dysentery, as it may increase the inflammation of the bowels; but after the fever is suppressed, and the disease become chronic, small doses of rhubarb are attended with the best effects.

Besides its purgative quality, it is celebrated as an astringent, by which it strengthens the tone of the stomach and bowels, and proves useful in diarrhœa, and disorders proceeding from laxity. It operates more powerfully when administered in substance, than in any other form. The dose for an adult is from a scruple to a drachm. The infusion is considerably weaker than the powder, and requires double the quantity. In the form of tincture its principal use is as a stomachic and tonic.

There are other plants growing in the Western States, called rhubarb, which have properties similar to the imported; and there can be no doubt that our climate is congenial to its growth, and considering the great value of the medicine, its cultivation ought to be attempted. The pie plant is a species of rhubarb.

ROSE WILLOW.—*Salix Rubra Rasalis*. Bark of the root.

This tree is about the size of a small apple tree, and covered with a greenish colored bark, and very red within; the flowers resemble a bunch of roses, from whence it derives its name. It grows near brooks, along the banks of rivers, and on upland meadows; it is known throughout the United States by the name of red rose willow, which distinguishes it from the black willow, or the puss willow, which grows in swamps and along the sides of moist meadows.

The bark of rose willow is an excellent tonic and astringent. It is very beneficial in strengthening and bracing up weakly women, laboring under the whites, relaxation, bearing down, &c.; and likewise in restraining immoderate flowing of the menses, and is used with considerable benefit in intermittent fevers, for which purpose it answers all the purposes of Peruvian bark.

For use, one pound of the bark may be boiled to three quarts; to which add three pints of port wine, and four ounces of loaf sugar. Dose, a tea cupful three times a day as a tonic, &c., to be continued till well. It is equally useful in gleet when the pure decoction may be used for injection.

ROSE. The flower leaves.

Roses are principally employed for purposes of perfumery; but they are applicable to many purposes of medicine. They are astringent and tonic, and beneficial in allaying inflammations, when applied in the form of decoction, fomentation, or poultice. For inflamed eyes they are excellent.

ROSEMARY.—*Rosemarinus Officinalis*. The flowering tops.

Rosemary is a shrubby perennial, which grows wild in the South of Europe, and is cultivated in gardens. It has a fragrant smell and a warm, pungent, bitterish taste, approaching to those of lavender: the leaves and tender tops are the strongest; the flowers themselves are considerably the weakest, but most pleasant. From the leaves, tops, and flowers of this plant an essential oil is prepared; or, when distilled with spirits of wine, they afford the celebrated Hungary Water.

These liquid medicines are esteemed excellent cephalics, in nervous and hysterical affections, and have been found eminently serviceable in apoplexy, palsy, and vertigo, in which cases they are sparingly applied to the temples and forehead.

GARDEN RUE.—*Ruta Graveoleus*. The herb.

Rue has a strong ungrateful smell, and a bitter, hot, penetrating taste. It is a powerful stimulant; and like other medicines of the fœtid kind, possesses attenuating, deobstruent, and atispasmodic powers. The dose of the leaves is from fifteen grains to two scruples.

SAFFRON.—*Crocus Sativus*. Summit of the pistils, called saffron.

Saffron is a bulbous rooted perennial plant, cultivated in gardens. Its smell is pleasant and aromatic, but narcotic; the taste a fine aromatic bitter, and it immediately gives a deep yellow color to the saliva, when chewed. The active matter is equally extracted by alcohol, water, proof spirits, and vinegar.

Saffron is a valuable plant, and is highly esteemed, as it exhilarates the spirits when taken in small doses; but if used in too large portions, it produces immoderate mirth, and all the consequences resulting from the abuse of spirituous liquors. It is considered an excellent remedy in hysteric depressions originating from spasms, or in obstruction of the uterine secretions; its principal use, however, at the present time, is to prevent the striking in of eruptions and the matter of the scarlet fever, and similar diseases.

SAGE.—*Salvia Officinalis*. The herb.

The leaves of sage have a peculiar aromatic smell, and a warm aromatic taste, with some degree of bitterness and astringency.

In its effects, sage agrees with other aromatics. It is stimulant, carminative, diaphoretic and tonic. In cold phlegmatic habits, it excites appetite, and proves serviceable in debilities of the nervous system. The best preparation for these purposes is an infusion of the dry leaves, drank as tea: watery infusions of the leaves with the addition of a little lemon juice, proves an useful drink in febrile disorders, being sufficiently agreeable to the palate.

SARSAPARILLA.—*Smilax Sarsaparilla*. The root.

This root is principally brought from the Spanish West Indies, and Central America. It is, however, found in abundance on the Ohio river, and in considerable quantities in other parts of the United States, though it is inferior in strength to that procured from the tropical climates. The root consists of a great number of long strings, hanging from one head. The long roots are of a blackish color outside, and white within, about the thickness of a goose quill.

They have a glutinous, bitterish, not ungrateful taste, and no smell. About two centuries ago it was introduced into Spain as an undoubted specific in syphilitic disorders; but owing to the difference of climate, or other causes, it has not answered the character which it had acquired in the Spanish West Indies. It is now considered as capable of improving the general habit of body after it has been reduced by the continued use of mercury. It is under these circumstances that its most beneficial effects are perceived, as it generally frees the patient from the distressing sequel to a mercurial course. The root of sarsaparilla is sometimes employed with success in rheumatic affections, scrofula, and cutaneous complaints, where an acrimony of the fluids prevails.

Sarsaparilla is usually combined with sassafras, guaiacum, liquorice, and other substances in a decoction or syrup.

SASSAFRAS.—*Laurus Sassafras*. Wood, root, and its bark.

This tree is a native of North America. The wood, root, and bark are used; they have a moderately fragrant smell, and a sweetish aromatic taste. Sassafras is a warm aperient and strengthening medicine; it has often been successfully given in the form of infusion and decoction, for improving the tone of the stomach and bowels, in persons whose humors were in a vitiated state. The essential oil is highly stimulating and heating, and must be given only in very small doses, being a sudorific and diuretic remedy. The bark is useful in intermittents; and the oil is said to be efficacious applied externally to wens and indolent swellings.

SAVINE.—*Juniperus Sabina*. The leaves.

This is an evergreen shrub, which has rather small prickly leaves, and produces blue berries, only after it has arrived at a considerable age. Its stem attains the height of seven feet, and is apt to grow in a reclining posture. The wood is of a beautiful reddish shade, resembling mahogany. Savine leaves possess a bitter acrid taste, and their smell is so disagreeable and powerful that it expels moth and similar vermin. When distilled with water, these leaves yield an uncommonly large proportion of essential oil.

Savine is a warm stimulating medicine, capable of producing sweat and increasing all the secretions, but apt to excite hæmorrhage, especially from the womb. It has long been considered as a powerful emmenagogue, and is frequently used to restore obstructed menses, when the leaves may be given in doses of from a scruple to a drachm, in powder, twice a day. But it is too acrid and heating in plethoric habits, and should be employed with caution, in those cases only which proceed from a relaxed state of the solids.

The savine oil is one of the most violent emmenagogues, and ought, therefore, to be used with great caution in obstructions of the uterus and other viscera, proceeding from laxity or weakness. Externally, the leaves are applied in the form of powder or infusion, to warts, carious bones, and old ulcers; and in cases of itch, gangrene, and scald head.

SCABIOUS.—*Erigeron Philadelphicum*. The herb.

Called also skevish fleabane, scabish, cocash, frostweed, squaw-weed, &c. It roots are perennial, yellowish, formed by many branching thick fibres. The stalks arise two or three feet, sometimes four or five in number, straight, simple, branched with small umbels at the top. Leaves oblong, obtuse, alternate, remote, larger at the foot of the stalk, and decreasing in size upwards. Flowers numerous, radiate, half an inch in diameter, with yellow disk, and rays white, bluish, or purplish, in shape similar to a daisy flower. It is found in fields and dry meadows, sometimes covering them entirely. There are several species of them, and they are generally considered pernicious and troublesome weeds on a farm.

These weeds are valuable medicines, possessing very active powers; they are diuretic, sudorific, astringent, styptic, emmenagogue, pectoral, and tonic, in a high degree, and act in a mode peculiar to themselves, by means of their acrid quality.

Their oil is so powerful that two or three drops dissolved in alcohol, have arrested suddenly uterine hæmorrhage. The diseases relieved or cured by these plants, are chronic rheumatism, dysury, inflammation of the kidneys, gravel, gout, dropsy, suppressed menses, dry coughs, cutaneous eruptions, hæmorrhages, dinness, rash, cold hands and feet.

The whole plants are used fresh or dried, in infusion, decoction, or tinc-

ture. Their extract is rather foetid, more astringent than the infusion or tincture; but less than the oil, which is one of the most efficient vegetable styptics. This extract, and a syrup of the plant, have been given usefully in dry coughs, bleeding at the lungs, and other internal hæmorrhages. The dose is from five to ten grains of the extract, often repeated.

As a diuretic, the infusion and tincture are preferable and more active; they have increased the discharge of urine three fold. A pint or two of the former may be taken daily, and it agrees well with the stomach. The dose in tincture is from three to four drachms daily; it is made by digesting an ounce of the leaves in a pound of proof spirits. They are beneficial in all diseases of the bladder and kidneys, attended with pain and irritation, in which they give speedy relief. Also in all compound cases of gravel and gout. They have cured diarrhœa, from their astringency, without any auxiliary.

They are used externally, in wounds, also hard tumors and buboes, which a cataplasm of the fresh plants dissolve and disperse. But the most valuable property is the astringent and styptic power of the oil, which has saved many lives in parturition and uterine hæmorrhage. A saturated solution of the oil in alcohol is applied, and a little given in a spoonful of water; and an instantaneous stop takes place to the bloody flow.

SCROFULA PLANT.—*Erythronium Flavum*. Root and leaves.

There are many varieties of this species of plant, which are known by different names, in different parts, as dog violet, rattlesnake violet, lamb's tongue, adder leaf, adder's tongue, snow drop, snakeleaf, &c.

The plant generally known by the above name, has a solid, pyramidal, bulbous root, deep in the ground, white inside, covered outside with a brown loose tunic, sheathing the base of the stem. Stem partly under ground, with two leaves, appearing radical because near the ground; the whole plant smooth and shining; stem white below, greenish purple above, slender, from five to twelve inches long. On the first year of the growth, only one leaf is produced, and it is commonly broader: the second year, two leaves, a little unequal in size, from three to seven inches long, oval, lance-like, shining, smooth, veinless, and with a single nerve, often spotted by large irregular spots, of a dull brown above, pale and unspotted below. A single flower at the end of the stem, one inch long, of a yellow color, sometimes tinted with red, nodding. Some variety of this species is found in every part of the United States. They all possess the same properties, as well as a striking resemblance.

The root and bulb of the leaves are emetic, emollient, suppurative, and antiscrofulous, when fresh, nutritive when dry. The dose to vomit is twenty-five grains of the fresh root, or forty of the recent dried root. But its greatest value consists in its being a remedy for the scrofula. This property it possesses was but lately discovered, but experience has established it in many instances.

The fresh roots and leaves are stewed in milk, and applied to the scrofulous sores as a poultice, healing them speedily; or the fresh bruised leaves may be laid on, renewing them often. The infusion is to be drank at the same time.

SCULL-CAP.—*Sculletaria Gallericulata*. The leaves.

This is a native perennial plant, rising about two feet high, growing on the banks of rivers and the borders of ponds; flowering in the months of July and August. Its stem is square and branched; leaves heart-shaped, narrow-pointed, on short foot-stalks, scalloped, and opposite; flowers blue, in pairs,

on pedicles growing from the axilla of the leaves, and pendulous. Scull-cap is bitter, and has a garlic smell.

This plant was considered of no botanical account till the recent discovery of its being an antidote to the bite of a mad dog. This property alone renders it invaluable. The mode of its application will be found described in the article on hydrophobia. The leaves should be gathered about the last of July, dried in the shade, pulverized, and put in bottles.

GARDEN SCURVY GRASS.—*Cochlearia Officinalis*. The plant.

This is an American plant growing on the sea shore, and in mountainous situations, and is sometimes cultivated in gardens. It possesses a considerable degree of acrimony, and by distillation an essential oil is obtained, the smell of which is so strong as to make the eyes water.

The fresh plant is a gentle stimulant and diuretic, and is chiefly used in the cure of the sea scurvy. It is employed externally as a gargle in sore throat and scorbutic affections of the gums and mouth. It may be eaten in substance to any quantity, or the juice expressed from it, or may be infused in wine, or its virtues may be extracted by distillation. It is said to be a powerful remedy in the moist asthma, and in what Sydenham calls the scorbutic rheumatism.

SENECA SNAKEROOT.—*Polygala Senega*. The root.

Seneca is a perennial plant, which abounds in nearly all the United States, particularly in Virginia and Pennsylvania. The stem nearly a foot in height; leaves sharp pointed, alternative, and on short foot-stalks: flowers small, white, and terminal. The root is about the thickness of the little finger, variously bent and contorted, and appears as if composed of joints, whence it is supposed to resemble the tail of the rattlesnake.

This root was introduced nearly an hundred years since, first in Virginia, and particularly as a specific for the cure of the bite of the rattlesnake. It is an active stimulus, and increases the force of the circulation, especially in the pulmonary vessels. It is therefore found useful in typhoid inflammation of the lungs, but is apt to disorder the stomach, and induce diarrhœa. Some have employed it in dropsy with success. There are examples of its occasioning a plentiful discharge by stool, urine, and perspiration; and by this means removing the disease after the common diuretics and hydragogues had failed.

It sometimes induces salivation, and possesses diuretic, emetic, cathartic, expectorant, and diaphoretic powers. It is of great utility as a remedy for that fatal disease, the *croup*, when it should be given in decoction; the strength must be determined by the physician: it must be so strong as to act sensibly on his own mouth and throat, in exciting coughing. Half an ounce of the root of seneca, simmered in a close vessel, in half a pint of water till it is reduced to four ounces, will be sufficiently strong, in most cases. A tea spoonful of this to be given every hour or half hour, as the urgency of the symptoms may demand; and during these intervals, a few drops occasionally, to keep up a sensible action of medicine in the mouth and throat, until it acts as an emetic and cathartic. By these means, in the course of two, four, six or eight hours, a membrane is often times discharged by the mouth, one, two or three inches in length.

Seneca has been usefully employed in the decline of pleurisies and catarrhs to promote expectoration. In suppressed coughs of aged persons and in asthma, it is doubtless useful: a gentle and constant stimulus on the throat should be kept up in these diseases. It has also been exhibited as a powerful remedy in cases of female obstructions. For tincture:—half an ounce of

the root to half a pint of spirit ; digest for ten days and strain ; dose twenty to thirty drops, two or three times a day.

SENNA.—*Cassia Marilandica*. The leaves.

The American senna has a woody, black, fibrous, contorted, perennial root ; stems numerous, smooth, upright, from three to six feet high, cylindrical and simple : leaves alternate, not many, large horizontal, leaf stem having a gland at the base, bearing from eight to ten pairs of folioles or leaflets, which are smooth, ovate, obtuse, and equal : flowers of a bright golden yellow, forming a panicle, on short stems, each having from five to fifteen flowers. Found in most parts of the United States, in rich, moist, and alluvial soils, near streams principally.

All the sennas are simple cathartics ; some kinds occasion gripings, and yet are not so active as rhubarb or jalap. This kind operates with mildness and certainty at the dose of an ounce in decoction. Both the leaves and pods are employed ; the infusion is weaker. They may enter into compound laxatives and cathartics.

SEPTFOIL.—*Tormentilla Erecta*. The root.

Tormentil is perennial, and found wild in woods and on commons ; it has long slender stalks, with usually seven long narrow leaves at a joint. The root is usually crooked and knotty, of a blackish color on the outside, and a reddish within.

This root has an austere, styptic taste, accompanied with a slight kind of aromatic flavor : it is one of the most agreeable and efficacious of the vegetable astringents, and is employed with good effect in all cases where medicines of this kind are proper. It has been used in diarrhœa, in the form of decoction, and in intermittent fever in substance, in a dose from half a drachm to a drachm.

SHRUB YELLOW ROOT.—*Xanthoriza Apifolia*. Stem and root.

Is a native plant of North Carolina ; the stem three feet high, and somewhat thicker than a goosequill ; root from three to twelve inches long, and about the diameter of a man's little finger, sending off numerous scions ; leaves are placed alternately, having long petioles, and pinnated, terminating in an odd one, leaflets sessile, and deeply lacerated on the edges. The flower stems are branchy, and placed immediately beneath the first leaves, which cause the flowers to appear before the leaves, very early in the spring. The stem and root are of a bright yellow color, and possess a strong, bitter taste.

The xanthoriza is a strong and pleasant bitter, very nearly allied to the colonibo root, and promises to become a valuable addition to the American materia medica. It is preferable to many of our native bitters, and may be used in powder, in doses of two scruples to an adult, in many of those diseases in which bitters are indicated, but it is generally combined with other remedies. It is a medicine which sits easy on the stomach, and produces no disagreeable effects.

SKUNK CABBAGE.—*Ictodes Fœtida*. Root and leaves.

The first appearance of this singular plant is the flower. After the flower is arrived to a state of perfection, the leaves appear at a small distance from the flower stalk in a conic form, very closely rolled together, growing very large and crimped. Common in swamps and low meadows. Flowers in April or May, and is exclusively a native of North America. The vulgar

name by which it is generally known, is taken from its very rank, disagreeable smell, nearly resembling that of a skunk.

The roots dried and powdered are an excellent medicine in asthmatic cases, and often give relief when other means are ineffectual. It may be given with safety to children as well as adults: to the former in doses of four, five, or six grains, and to the latter in doses of forty grains and upwards. It is given in the fit, and repeated as the case may require; and after the paroxysm is gone off, the dose may be repeated three or four mornings in succession, then miss as many, and repeat again; thus continuing the medicine till the patient is perfectly recovered.

Skunk cabbage is not only a good antispasmodic in all cases where such are indicated, but it is also a powerful emmenagogue, anthelmintic, and a valuable remedy in dropsy, in spasms, rheumatism, palpitations, &c. It is frequently used in childbed to promote the birth. The seeds of this plant are supposed to possess more efficacy in asthma than the root. For expelling worms, the pulverized root should be administered in molasses for a sufficient length of time, following it up with a purge.

VIRGINIAN SNAKEROOT.—*Aristolochia Serpentaria*. The root.

This medicinal plant is a production of the United States exclusively. Root perennial, knotty, brown, and very fibrous; fibres long, small, and yellow when fresh; stalks round, slender, weak, jointed, less than a foot high, bearing from three to seven leaves, and from one to three flowers; leaves alternate, oblong or lance-like, base heart-shaped, and sharp, surface smooth, sometimes undulate; flowers nearly radical, solitary, on long hanging stems, of a purplish or reddish color. There are many varieties of this class. They are found in shady woods from New-England to Florida and Missouri. The root has an agreeable penetrating aromatic smell, somewhat similar to valerian and spruce.

Its properties are diaphoretic, tonic, anodyne, antispasmodic, cordial, antiseptic, vermifuge, carminative, and a powerful stimulant of the whole system. It was first introduced in *materia medica* as a remedy against snake bites: it acts then as a sudorific and antiseptic. It is useful in low stages of fever, to support strength and allay irregular actions. It is an excellent auxiliary to tonics in intermittents, enabling the stomach to bear them, and increasing their effects. In remittent fevers it is preferable to bark. It is a deservedly popular remedy in the country, in infusion, for pleurisy, eruptions, cachexy, catarrh, rheumatism, &c., acting as a sudorific. In pleurisy it has been found highly serviceable; in bilious complaints it checks vomiting, and tranquilizes the stomach. In typhus fevers it has beneficial effects, promoting perspiration, checking mortification, and abating the symptoms.

The snakeroot may therefore be deemed a valuable and active medicine; which may be profitably associated with tonics, and also with camphor, opium, valerian, &c., to increase their action. It may be substituted for these last, in many cases. The doses of the powder are from ten to thirty grains, often repeated, or an ounce of the warm infusion every three hours. Wine is an excellent vehicle for it in fevers.

SNAKEHEAD.—*Chelone Glabra*. The herb.

This is found in brooks and wet grounds, where it forms bunches, and rises two or three feet. Stem smooth, and bluntly four-cornered. Leaves opposite, lance-like, sharp, dark green and polished above; flowers in a terminal spike, a few only expanding at once, large, white, inflated, contracted at the mouth, not unlike the head of a serpent. Found in the Eastern, Middle, and probably the Southern States.

The only purpose to which I have appropriated this herb is that of a vermifuge, and for that I have found it to be very safe and effectual, in common cases. I think it has no superior, rarely failing to expel the worms. It should be administered in infusion, continued for a time, and followed by a suitable purge. An ounce of the dry herb is sufficient in any case for children.

SNEEZEWORD.—*Helenium Autumnale*. The herb.

Also called sneezeweed, oxeye, false sunflower, yellow star, &c. Its root perennial and fibrous. Several stems from three to seven feet high, erect, angular, branched, and corymbose, covered, together with the leaves, with a very short and dense hair; leaves alternate, sessile, lance-like, sharp, unequally serrated, and dotted in small pits: flowers on scattered shafts, of a golden yellow, large, one or two inches in diameter, resembling a sunflower. Found all over the United States, in wet meadows, damp fields, on the banks of streams, &c. Its taste is bitter, and a little pungent.

It is a tonic, febrifuge, and errhine; but it is for this last purpose that it is chiefly used in the country. The whole plant, reduced to powder will excite sneezing; but the flowers, and particularly the central florets, are powerful sternutatories: a very small pinch of their powder produces a lasting sneezing. It is highly esteemed by those acquainted with its effects, and is substituted for the more acrid errhines, either alone, or united to other ingredients. It may be used in diseases of the head, deafness, headache, rheumatism or congestion in the head or jaws, &c. The shocks of sneezing are often useful in those cases, when other remedies can hardly avail.

SOLOMON'S SEAL. *Convallaria Polygonatum*. The root.

This plant rises six or eight inches in height; leaves lance-like, and of a dark green color; flowers in umbels, and hang on the lower side of the leaning stalks, producing red berries. It grows on the sides of meadows, high banks and mountains, in every part of the United States.

The roots are astringent, incrustant, and corroborant; the flowers, berries and leaves are acrid and poisonous. The sweet mucilage of the roots applied as a poultice, is good in inflammations and piles.

A handful each of Solomon's seal and comfrey root, bruised and infused in two quarts of wine, is a valuable remedy for the whites, and other female weaknesses, when taken in quantity of a wine glassful three times a day.

SOAPWORT.—*Saponaria Officinalis*. Root and leaves.

Rises a foot in height; leaves entire, pointed, and furnished with three ribs: flowers numerous, terminal, large, and of a pale pink color. It grows in low moist swamps and meadows, and flowers in July and August. A decoction of the root produces a soapy froth not injured by acids.

This plant is said to have cured the jaundice, and to remove obstructions of the liver, and is by some considered superior to sarsaparilla in the cure of the venereal disease. Two ounces of the dry root, and four ounces of the leaves, may be boiled down to two quarts, and strained; of this a half pint may be taken four times a day.

SORREL TREE.—*Andromeda Arborea*. Leaves and wood.

Also called sour tree, sour wood, sour leaf, &c.

This is a small tree, from fifteen to forty feet high; branches slender; the

bark of a light brown, of the old branches reddish, of the young shoots green; leaves large, from three to six inches long; flowers white, terminal, one third of an inch long, forming a loose panicle, composed of many stems, bearing each from twelve to twenty flowers. It is found in the Southern States, and seldom met with North of Virginia and Kentucky.

The leaves and wood are a fine astringent acid, refreshing, cooling, allaying thirst, and anti-febrile. A decoction of the leaves mitigates the ardor of fevers, and helps their cure. It is useful in all cases where a refrigerant and astringent is needed; a kind of lemonade can be made with it. It may be substituted for sumac and cranberries.

SHEEP SORREL.—*Rumex Acetosa*. The leaves.

Sheep sorrel is common and well known, growing in old pastures and cornfields throughout the United States.

An infusion of the leaves is refrigerant, useful in all inflammatory habits, as well as in the scurvy. Sorrel leaves, wrapped up and roasted, and applied to indolent tumors, wens, biles, inflammations, &c., brings them to a suppuration very quick. It will be found quite serviceable in such cases.

SOUTHERN WOOD.—*Artemisia Abrotanum*. The herb.

This plant rises three feet high, with vertical branches; leaves numerous, irregularly bipinnated, long, narrow, sharp, bristly; flowers very minute, of a greyish color, in close terminal spikes, and mixed with leaves. It is perennial, and chiefly cultivated in gardens.

Southern wood is stimulant, detergent, sudorific, discutient and antiseptic. The powder has been given to open obstructions of the viscera, and to destroy worms, (this being a species of the wormwood.) It is also applied externally, in ointments and fomentations, for cutaneous eruptions, hard tumors, preventing the hair from falling out, and causing it to grow. For worms, from one to two tea spoonsful of the powder may be taken in molasses morning and evening.

MALE SPEEDWELL.—*Veronica*. Leaves and root.

This plant is cultivated in gardens and needs no description.

It is aperient, pectoral, diuretic, and has been found beneficial in disorders of the breast, both catarrhus and ulcerous: it purifies the blood and juices. An infusion of the leaves drank as tea, promotes urine, strengthens the stomach, removes melancholy, gravelly complaints, bloody urine, hoarseness, and colic.

It may be taken in infusion, or in powder of the root, a tea spoonful twice a day.

SPIKENARD.—*Aralia Nudicaulis*. The root.

Spikenard root is perennial, brown, yellowish, creeping, twisted, sometimes many feet long, the thickness of the finger; one stem and one leaf mostly rising together, and less than two feet high; stem straight, leafless, with three small simple naked umbels at the end; leaf with nine folioles or leaflets, ovate, oblong, and smooth; flowers from twelve to thirty in each umbel, small and yellowish; berries small, similar to elder berries in size. Found from New-England to Carolina and Indiana, more common in the North than in the South; grows in deep woods, and good soils. It has a balsamic, fragrant, and warm aromatic sweetish taste.

All the spikenards are popular medical plants throughout the United

States. They are healing, pectoral, sudorific, stimulant, diaphoretic, cordial, depurative, &c. The roots and berries are most efficient.

The roots bruised or chewed, or in poultice, are used for all kinds of wounds and ulcers by the Indians. Fomentations and cataplasms are useful for cutaneous affections, erysipelas and ringworms. An infusion or decoction of the same are efficient substitutes for those of sarsaparilla, and even more powerful in all diseases of the blood, syphilitic complaints, chronic rheumatism, local pains, pain in the abdomen, &c. As a pectoral, both roots and berries may be used in syrups, cordials, decoctions, &c., and have been found useful in coughs, catarrh, cachexia, languor, pains in the chest, &c. The cordial of spikenard is recommended for the gout, and the juice or essential oil for the ear-ache and deafness.

SPLEENWORT.—*Asplenium Trichomanes*. The herb.

This is a small plant, six or eight inches high; leaves upright, numerous and pinnated, similar to break; the ribs are blackish, leaflets in pairs, gradually diminishing towards the top. It grows in bunches in low woods, near moist meadows and among rocks.

Its leaves are pectoral, aperient and diuretic; they open obstructions of the viscera, promote expectoration, assist urine by cleansing the kidneys, allay pains in the urinary passages, frequently carrying off sand and gravel. It is said this herb has cured the venereal disease.

SQUILL.—*Scilla Maritima*. The root, called sea onion.

The squill is a perennial, bulbous rooted plant, which grows wild on the sandy shores of Spain, Portugal, and the Levant. The best sea onions ought to be sound, fresh, and to contain a viscous juice; they are nauseous, bitter, and if much handled are so acrid as to ulcerate the skin. It is more commonly met with in the shops in the form of dried scales, which should be brittle, smooth, clear, but marked with lines, and when chewed should feel tenacious, and taste very bitter. It becomes inert by long drying or exposure.

The squill is a powerful stimulant, promoting the discharge of urine; and if the patient be kept warm, a profuse perspiration. It is chiefly employed in cases where the organs of respiration are clogged, or oppressed with mucus. It has been greatly extolled for its efficacy in dropsical swellings, and in inflammations of the kidneys. If the squill be taken in a large dose it operates as an emetic, and in some cases it produces even strangury, bloody urine, and inflammation of the stomach. In smaller doses, however, it proves an useful expectorant and diuretic, and is peculiarly serviceable in phlegmatic habits, and where the lungs are oppressed with viscid matter.

The dose of squill is one or two grains, two or three times a day; and the most commodious form is that of pill. When mixed with honey into an *oxymel*, it affords an useful medicine in obstinate coughs.

STINKWEED, OR THORNAPPLE.—*Datura Stramonium*. The leaves and seeds.

Also called Jamestown weed, Jimson, &c. The root of stramonium is annual, white, and crooked; stem erect, from one to eight feet high, branched by forks, round, often hollow, smooth or hairy; leaves alternate at the forks, petiolate, oval oblong, base decurrent and sharp, forming in its outlines a triangle, edges deeply toothed; flowers axillary, single, on short stems, erect, large, white, or bluish; fruit a large fleshy head, thorny, with four valves opening at top, containing many black seeds. It is a wandering

plant, common to all parts of the world, and spreads with rapidity. It is an exotic, and appeared first in Jamestown, Va., whence its name. The whole plant has a fetid, lurid, and narcotic smell, causing head-ache and stupor; it has a bitter and nauseous taste. It yields its properties to water and alcohol.

This loathsome weed is one of those bounties of nature scattered almost every where, and possessing energetic medical powers. It is narcotic, antispasmodic, antiepileptic, anodyne, sedative, &c., and externally, refrigerant, detergent, resolvent, &c. It has been strongly recommended in epilepsy, rheumatic pains, tic doloroux, gout, and all kinds of pains, mania, convulsions, asthma, St. Vitus's dance, sciatica, &c., and externally for burnings, scaldings, tumors, ulcers, cancers and piles. It sometimes fails for want of care in its administration, or from too great a quantity; it then produces vertigo, confusion of mind, dilatation of the pupil, loss of sight, head-ache, nausea, faintness, delirium, convulsions, lethargy and death. Vinegar neutralizes it, preceded by an emetic.

The effects of this narcotic when administered internally for medical purposes, and in proper doses, is to lessen sensibility and pain, to cause a kind of nervous shock, attended with some nausea, a feeling of intoxication and suffocation, to have little influence on the pulse, to relax the bowels, &c., followed by a sensation of ease and quiet, which induces sleep.

In asthma, it is seldom more than a palliative, but very useful in the paroxysms. It may be smoked like tobacco; or, which is preferable, the leaves may be burned in a crucible, and the smoke inhaled. It adds greatly to their efficacy in relieving asthmatic spasms, to have them previously prepared by saturating them with saltpetre in solution, and then drying them for use. The seeds may also be smoked in the same manner. An infusion or decoction of the leaves or seeds has the same effect. In madness it is frequently of service. For palpitations it is a tolerably certain remedy. In epilepsy and convulsions it cures the periodical fits, and frequently quells the sudden fits. It is highly serviceable in chronic acute diseases, such as sciatica, syphilitic pains, disease of the spine, cancer, uterine pains, gout, rheumatism, mercurial pains, &c., and in all cases where an antispasmodic is required. In tic doloroux, although not an infallible cure, it has proved itself superior to any other remedy, frequently curing, and always relieving.

Externally, it is a safe and certain remedy for burns, tumors, gout, ulcers, inflammations, and some cutaneous eruptions. The leaves, or their ointment, applied to the parts, promote cicatrization and granulations in the worst ulcers, and afford speedy relief in piles. It is said that the leaves applied to the head produce sleep and dreams. The plant may be gathered for use at any time, but is best when in blossom. All parts of the plants are efficacious; but the seeds are preferable in some instances.

Many preparations are made for internal use, as the powdered leaves, extract, decoction, juice, and tincture. For external use, an ointment is made by simmering one pound of the fresh leaves in three pounds of lard. The doses for internal use are, to begin, very small, viz., one grain of the powdered leaves or extract; one quarter of a grain of extract from the seeds, and fifteen to twenty drops of the tincture. One pound of the seeds affords two ounces of extract, and one pound of the leaves, three ounces.

SUCCORY.—*Chicoreum*. The herb.

The wild succory has many long leaves, lying on the ground, with torn edges, and ending in a point. The stem rises from the rib in the middle of the leaf, is hard, round, spreading into many branches set with smaller leaves, and divided at the top, where stand the flowers, which are similar to those that grow in gardens. The whole plant is exceedingly bitter, and much

stronger than the cultivated kind. It grows wild about old ruins, and in barren fields.

It is laxative, aperient, attenuant, detergent and corroborant. The juice expressed from the plant has been found beneficial in obstructions of the viscera, jaundice, cachexia, hectic fevers, hypochondriac affections, cutaneous affections, cutaneous eruptions, debility of the bowels, and other chronic disorders.

COMMON SUMACH.—*Rhus Glabrum*. The berries, and bark of the root.

There are two kinds of the common upland sumach, one known as the narrow-leaved sumach, the other as the Pennsylvania sumach. The latter is smooth, and rises to the height of ten or fifteen feet. The leaves are feathered, sawed, lanced, naked on both sides, and change to a beautiful red in autumn. The seeds are in large bunches, arranged like the flowers, are red, and covered with a white powder, of an agreeable acid taste.

The two species above mentioned are considerably astringent. An infusion of the berries sweetened with honey, is sometimes used as a gargle in sore throats, and for cleansing the mouth in putrid fevers.

The bark of the root is considered a very great antiseptic; in form of poultices for old ulcers, it is hardly equalled by any; in decoction, good for hectic fever and scrofula. It is said to be efficacious in the venereal, combined with the bark of slippery elm and white pine, in decoction, and taken freely.

SWAMP SUMACH, OR POISON OAK.—*Rhus Toxicodendrum*. The leaves.

Swamp sumach has a low shrubby stalk; leaves trifoliate, with pretty large foot stalks, lobate, entire, and somewhat heart-shaped; the flowers come out from the sides of the stalks in loose panicles, are small, and of an herbaceous color. This plant, sometimes called poison wood, is so acrimonious, that the touching of the leaves, or rubbing them on the skin, occasions itching, inflammation, and eruption.

The leaves of this shrub have been given in cases of paralysis, in doses of half a grain or a grain, three times a day with marked success. The first symptom of amendment was always an unpleasant feeling of pricking or twitching in the paralytic limbs; generally operating as a laxative, notwithstanding the torpid state of the bowels of such patients.

The varnish tree, or white swamp sumach, is a still more violent poison than the above.

STRAWBERRY.—*Fragaria Vesca*. The fruit.

The common strawberry, although chiefly considered as an article of food, deserves a place among medicines. They are diluent, refrigerant, subastringent, diaphoretic, pectoral, &c. They are useful in fevers, gravel, gout, scurvy, and consumption. They are cooling, promote perspiration, give relief in diseases of the bladder and kidneys, upon which they act powerfully.

It has long been extolled in gout and phthisis. Persons laboring under these chronic complaints ought to eat them frequently when in season, and use at other times their syrup. Used moderately, they are certainly a valuable medicine in many cases; but an excessive dose of either is, however, liable to produce vomit, or a painful stricture in the bladder, with red urine. They possess, also, the property of curing chilblains; their water is used in France for that purpose, as a wash. The plant and leaves have nearly the same properties, are less cooling and more astringent. Both have been em-

ployed for sore throat, swelled gums, bowel complaints, jaundice, and fevers, in infusion and decoction.

SMALL, ROUGH SUNFLOWER.—*Helianthus Divaricatus*. The leaves, seeds and root.

A showy plant, not uncommon in woods and thickets, flowering in August and September. Stem erect, round, smooth, generally covered with a sea green powder. Leaves opposite, narrow, ovate, rounded at the base, tapering to a long point, slightly serrate, three nerved, and very rough. Flowers yellow, in the wild plant but few in number, in the cultivated one, numerous. Branches of the panicle either forked or three-parted. It is perennial. This plant has an agreeable and somewhat spicy odor.

This sunflower is one of the most valuable medicinal plants our country produces. It is carminative, antispasmodic and laxative, and is the most efficacious remedy in bilious colics that can be administered. In all diseases where carminatives and antispasmodics are indicated, it may be employed with the greatest benefit. The leaves, or the root, (which is the strongest,) may be taken in powder, in quantity of ten or fifteen grains every hour, if necessary, or in urgent cases in a larger dose. The powdered leaves of this plant form the principal ingredient in Hull's celebrated physic.

TAMARINDS. A fruit.

The tree producing tamarinds grows both in the East and West Indies.

The pulp of tamarinds, besides its virtues as an acid, proves laxative, when taken to the extent of an ounce and a half. It is generally added to other cathartics, which are given in the form of infusion, with the view of promoting their operation and covering their taste. By its acidity, this fruit quenches thirst, and allays immoderate heat.

TAMARISK TREE.—*Tamarix*. Bark and leaves.

This tree is commonly known in this country by the name of tamarack.

The bark of this tree is valuable for its aperient and corroborant virtues in obstructions of the liver; the leaves are employed in jaundice, bleeding at the lungs, and some affections of the skin; also in piles, immoderate menses, ulcers, burns, dropsy, &c. Both should be used in decoction.

TANSY.—*Tanacetum Crispum*. The herb.

This herb has a warm bitter taste, not ungrateful to the palate. It is an excellent tonic stomachic, deobstruent, and emmenagogue, and has a favorable effect in hysteric disorders. The leaves and seeds have been in considerable esteem as anthelmintics, and are given in doses of from one scruple to one drachm. The decoction of tansy, or the juice drank in wine, is very useful in strangury and other obstructions of urine, and in weakness of the kidneys.

THYME.—*Thymus Virginicus*. The herb.

An erect plant, with flat topped branches; stem square, downy at the angles; leaves opposite, rigid, very narrow, rounded at the base, and tapering to a long acute point; flowers in numerous small heads, mostly terminal, white, dotted with purple. Found by fences and woods. It has an agreeable aromatic smell, and a warm pungent taste.

Its virtues are said to be resolvent, emmenagogue, tonic, and stomachic. It strengthens the lungs, relieves shortness of breath, and expels wind. It is given in the form of decoction.

TOBACCO.—*Nicotianum Tabacum*. The leaves.

The tobacco plant is a native of America, where considerable quantities are annually raised for exportation. The leaves have a strong, disagreeable, narcotic smell, and a very acrid burning taste. The active constituent of tobacco is an essential oil, so active that small animals are almost instantly killed when wounded by a needle dipped in it; and a few drops of this oil taken internally have operated as a fatal poison.

The effects of tobacco are those of a powerful narcotic. Along with severe nausea and vomiting, it reduces the force of the circulation, and occasions extreme muscular debility, with insensibility and cold sweats. In the iliac passion, and in hernia, both the infusion and smoke of tobacco have been employed with the happiest effects, in the form of injection. In cases of abdominal dropsy, and other dropsical affections, it appears to be a valuable remedy on account of its powerful diuretic qualities. For this purpose it is prescribed in the form of infusion, about eighty drops of which is an average dose, beginning with a less quantity and increasing to a greater, or till by its effect the proper dose is ascertained. It should be given two hours before dinner, and at bed time. In gravely obstructions of the kidneys, this infusion has been given with astonishing effect.

The decoction of tobacco exhibited in cases of colic, has procured relief almost instantaneously, after other medicines had proved ineffectual. One ounce of the infusion, in half a pint of milk or gruel, is a medium dose in the form of injection for an adult of an ordinary constitution.

As a vermifuge it is deserving of being held in high repute, either taken internally, or the leaves pounded with vinegar and applied in the shape of a poultice to the region of the stomach, or other part of the abdomen. In consequence of this application worms are often discharged, after powerful internal vermifuges have failed.

In the lockjaw, injections of this infusion have been used with success; they not only produce evacuations from the bowels, which are generally obstinately constipated, but from their antispasmodic powers occasion a relaxation of the violent spasms so peculiar in this disease. In obstinate constipation of the bowels from hard fæces, the infusion of this medicine has been administered often with immediate relief, by occasioning a speedy expulsion of the obstructed indurated fæces. In epilepsy and general convulsions it has performed surprising cures.

TOOTHACHE TREE.—*Xanthoxylum Clava Herculis*. The bark and roots.

Also called prickly yellow wood. It flourishes in the Southern States, particularly in Georgia, the Floridas, &c., and other tropical climates. It grows from ten to sixteen feet in height, and resembles the prickly ash tree, only much larger. The bark is full of knobs, surmounted by sharp thorns.

The bark is a powerful stimulant and sialagogue, carminative and detergent. It has a hot acrid taste, and when chewed in small quantity powerfully promotes the flow of saliva. It is used in this way to relieve the toothache. A decoction of the bark is used with great success as an internal remedy, and also as a wash for foul ulcers and sore throats, which it powerfully cleanses and disposes to healthy granulations. In the venereal sore throat, this is particularly efficient. The powdered bark is mixed with dressings, in external ulcers.

The decoction of the bark, taken freely, and the pained parts bathed with the same, is one of the most sure remedies for the chronic rheumatism yet discovered. It may be given alone, or in combination with sarsaparilla, or other alteratives. Exhibited in the same form, it is perhaps equal, if not superior, to any other article yet discovered, in eradicating syphilis, and relieving the rheumatic pains consequent upon the use of mercury. As a general remedy, it may be employed with decided benefit in all the forms of the venereal disease, and especially where mercury has been previously administered. The fresh juice expressed from the roots affords certain relief in the disease termed dry belly-ache. This important fact was discovered in the West Indies, by watching a female slave, who collected the root in the woods, and gave two spoonfuls of its juice to a negro suffering under that colic, at an interval of two hours. Such a dose occasioned a profound, but composed sleep of twelve hours, when all sense of pain and other distressing symptoms had vanished; the cure was completed by giving an infusion of such expressed roots in water, by way of diet drink. Dr. Henry, of Jamaica, has given his experience of the success of *xanthoxylum* in curing epilepsy, ulcers, fevers, dry belly-ache, &c. He says the juice of the wood, when preserved in rum, and administered in doses not exceeding a wine glassful, has effectually removed the most obstinate epileptic fits.

For internal use, boil two ounces of the bark, with two ounces of sarsaparilla, in four quarts of water down to two; strain it and give the patient a pint twice a day. This bark possesses such power that but a small quantity is necessary to form a saturated infusion, tincture, or decoction.

TORY WEED, OR CANADIAN BURR.

The herb known by this name in many parts of the country, grows from one to two feet high; top branched; leaves resembling mullein leaves, but smaller; flowers of a red or pink color, and seed contained in a burr, which fastens upon clothes, or upon the hair of animals, and adheres with great pertinacity. It is found in the richest soil and spreads with great rapidity, much to the annoyance of the farmer.

This troublesome weed may be rendered useful for many purposes of medicine. The leaves are an excellent application for allaying inflammations and extracting the soreness and virulence from irritated, bruised, or galled parts. When the feet are excoriated by the shoes, or in travelling, I know of no application which will give such complete and immediate relief as the leaves of tory weed. According to Dr. Morrison, of Utica, the pulverized root of this plant taken in doses of two or three grains, four or five times a day, will prevent the hydrophobia. A small dose vomits.

TURMERIC.—*Circuma Longa*. The root.

Turmeric is a perennial plant, growing plentifully in West Florida, and on the borders of the Ohio river. The leaves of turmeric are six inches long, and three or four inches broad, of a bright green color, and pointed at the end; the flowers grow on stalks ten inches high, and about the thickness of the little finger, which are of a pale reddish color, collected in a cone of an oblong figure. The roots are tuberous, knotty, long, and wrinkled; externally of a pale yellow color, internally of a shining saffron brown. They have a weak aromatic smell, and a slightly bitter aromatic taste.

Turmeric root has been celebrated in the cure of diseases of the liver, jaundice, cachexy, dropsy, intermittent fevers, &c. In the present practice it is also used in removing obstructions of the menses, and is effectual in giving speedy relief in fits of the gravel and in resolving tumors.

A tea spoonful of the powdered root may be taken at a dose, or it may be made into a tea.

UNICORN ROOT.—*Aletris Farinosa*. The root.

Also called mealy starwort, star grass, blazing star, bitter grass, ague root, devil's bit, &c.

The root is perennial, small, black outside, brown inside, and crooked. Radical leaves from six to twelve, spreading on the ground like a star; but all unequal in size, sessile, lance-like, entire, very smooth, with many longitudinal veins, very sharp at the end; they are pale green, and bleach in winter, or by drying; the longest are four inches. Stalk from one to two feet high, very simple, upright, nearly naked, with remote scales, whitish, and sometimes changing into leaves. Flowers white, forming a long, slender, scattered spike. This species is found from New-England to Georgia and Kentucky, generally in dry poor soils.

The root is intensely bitter, and not cathartic like aloes. It is tonic, stomachic, and repellant. It is employed by many botanic physicians, and is highly valued by them as well as the Indians. But small doses only must be used, because large ones produce nausea, dizziness, and narcotic effects; twelve grains of the powdered root is the largest dose. In repeated small doses it invigorates the appetite. The infusion or decoction is preferable. It cures the flatulent and hysteric colic, and is said to relieve the chronic rheumatism, either in powder, tincture, or cordial. In fevers it avails speedily. It affords an excellent female bitter. A mild cordial is the best spirituous preparation.

VALERIAN.—*Valeriana Sylvestris*.

Grows two or three feet high; leaves large and hairy, in pairs, and of a dusky green color, divided down to the middle rib, and appear as if made of many small leaves affixed on the two sides of the stalk; flowers in large tufts or bunches on the top of the branches, and are of a pale reddish color. The root consists of a number of slender fibres matted together and attached to one body, are of a brown white color, having a strong unpleasant smell. It is perennial, and varies in its appearance and sensible qualities, according to the situation in which it grows. In marshes and shady places its leaves are broader than that which grows on high lands; and the root of that found on high dry land is much stronger than that which grows in marshes, and is preferable for medical use.

Valerian is an excellent medicine in nervous disorders, and particularly in epilepsies, hysterical and hypochondriac affections, proceeding from debility of the nervous system.

The common dose in nervous complaints, is from one to two tea spoonful of the powdered root, taken in a tea cupful of mint water, twice or three times a day. The same dose may be steeped in water and taken. The American valerian is sometimes known by the name, white snake root.

VERVAIN.—*Verbena Hastata*.

The common blue vervain is a tall showy plant, common by road sides in low ground. Stem three or four feet high; leaves opposite, rough, sharply serrate, tapering to a long point, the lower ones broader, with commonly a lobe on each side at their base; spikes numerous, erect, slender, the flowering commencing at their base, and is long in reaching their summit; flowers close, of a dark purplish hue, appearing in July and August, roots long and small. It is found throughout the United States.

It has been found beneficial in the cure of intermittents and scrofula, opens obstructions of the viscera, promotes the menses, and is good in gravelly complaints, coughs and wheezing, and expels worms. It should be prepared in a strong decoction, and drank daily.

THE VINE.

The dried fruit, called raisins, and the fomented juice of the fruit, called Spanish white wine.

The vine grows in temperate situations in many parts of the world, and is cultivated very generally for the sake of its agreeable subacid fruit. When thoroughly ripe, the grape is one of the most agreeable fruits. It is cooling, antiseptic, and nutritious, and when eaten in considerable quantity, diuretic and gently laxative. In inflammatory diseases, and all others where acids are indicated, they form an excellent article of diet.

Raisins are grapes that have been carefully dried. By this means not only the water they contain is dissipated, but the quantity of acid seems to be diminished. They become more saccharine, mucilaginous, and laxative than the recent grape, but are less cooling.

Wine is the juice of the grape altered by fermentation. The red wines most commonly drank in this country, are port, which is strong and austere, and claret, which is thinner and higher flavored. Our white wines are called Madeira, Sherry, Lisbon, Malaga, and Hock. Of these the last is the most acidulous, and Malaga the sweetest.

Wine, taken in moderate quantities, acts as a beneficial stimulus to the whole system. It promotes digestion, increases the action of the heart and arteries, raises the heat of the body, and exhilarates the spirits. Taken to excess, it produces inebriety and stupor, which are often succeeded by headache, nausea, and diarrhœa, which last for several days. Habitual excess in wine debilitates the stomach, produces inflammation of the liver, weakens the nervous system, and gives rise to gout, apoplexy, tremors, and cutaneous affections.

To convalescents, and in all diseases of general debility, and deficiency of the vital powers, wine is a remedy on which we may place great dependence; and when properly administered, its effects are often scarcely credible.

In typhus fever, attended by low delirium arising from debility, and also in the scarlet fever, wine administered to the extent of one bottle or more in twenty-four hours, surprisingly mitigates the symptoms, sustains the vital heat and energy, and finally proves a sovereign remedy. Wine, given to the extent of three gallons in four days, has cured the lockjaw. Probably spirituous liquors of any kind would have the same effect when taken in quantity sufficient to produce intoxication.

Wine has been emphatically termed the "milk of the aged," but parents are seriously advised to beware of giving wine to their children *indiscriminately*, because to them it can be of service only when taken as a medicine; and those injudicious persons who encourage young people to take wine habitually at their meals, are guilty of an abuse which cannot be easily repaired by future abstinence.

Wine is often adulterated with lead or other deleterious drugs. In order to detect this fraud, take two drachms of cream of tartar, and one drachm of liver of sulphur; put them into a two ounce vial of soft water. The vial must be kept well corked, and occasionally shaken for about ten minutes; when the powder has subsided, decant the clear liquor, and preserve it in a well stopped bottle. From fifteen to twenty drops of this liquid are to be dropped into a glass filled with the suspected wine; and if the wine turns blackish or muddy, and deposits a dark colored sediment, we may be

certain it is impregnated with sugar of lead, or some other preparation of that metal equally destructive.

WATER DOCK.—*Rumex Aquaticus*. Root and leaves.

This plant grows in peat marshes, wet ditches, pools, at the sides of rivers, and in shallow water. It rises five feet high; leaves nearly two feet long, narrow, linear, and pointed; those at the bottom are near eighteen inches in length, of a narrow ovate form, somewhat indented, and stand upon long channelled foot-stalks; flowers numerous, yellow, and hang in whorled spikes upon slender peduncles.

This plant affords a medicine of considerable efficacy when applied externally as a wash for foul ulcers, and for spongy and putrid gums; its roots when pulverized have been found excellent for cleaning the teeth. The roots are of a bitter astringent taste, and have often been employed for the cure of scorbutic and cutaneous disorders, in which they are administered internally and applied externally in ointments, cataplasms, lotions or fomentations. Decoctions of the leaves are, likewise, an efficacious laxative, and have been taken with advantage in rheumatic pains and chronic diseases occasioned by costiveness, or by visceral obstructions. The dose usually given is a decoction of half an ounce of the fresh roots, or from one to two drachms of them in a dry state.

The Indians used the water dock with great success in cleansing foul ulcers. Dr. Withering states, that he saw an ill-conditioned ulcer in the mouth which had destroyed the palate, cured by washing the mouth with a decoction of this root, and drinking a small quantity of the same decoction daily.

WHITE WOOD TREE.—*Liriodendron Tulipifera*. Inner bark of the root.

This noble tree is so well known throughout the United States, by the names of tulip tree, white poplar, white wood, &c, that it is needless to give any description of it.

The inner bark of the root of this tree must be cut fine and ground to powder. It is a great tonic, a pleasant aromatic bitter, and an astringent; it is, therefore, a good substitute for the Peruvian bark in the cure of intermittents, and may be employed in all cases where tonics and aromatics are indicated. It may be infused in spirits for a bitter, or one or two tea spoonfuls of the powder may be taken three or four times a day.

Combined with poplar bark, it is very successful in jaundice and rheumatism.

WHITE BALL.—*Cephalanthus Occidentalis*. Flowers, leaves, and bark.

Also called buttonwood shrub, little snowball, swampwood, pond dogwood, globe flower.

This is a fine ornamental shrub, from five to fifteen feet high, very branched, bark yellow brown, spotted with red, rough on stems; leaves ternate or opposite, with red petioles, from two to four inches long, oval, and sharp, undulate, smooth on both sides, nerves often red, veins yellow. Flowers terminal, peduncled, forming round balls of a cream white appearance, and sweet scented, fringed over, nearly as large as a walnut. Found mostly near streams, ponds and swamps all over the United States.

Its properties are tonic, cathartic, febrifuge, diaphoretic, &c. The flowers, leaves, bark of stems and roots, are used by the Southern Indians and French settlers in Louisiana. A fine fragrant syrup may be made with the flowers and leaves, which is a mild laxative and tonic. The most efficient part is the

bark of the root. A decoction of it cures intermittent fevers, acting on the bowels at the same time, and is used in relaxed bowels, &c.

WINTER GREEN.—*Gautiera Repens*. Leaves and essential oil.

Also called mountain tea, deer berry, spice berry, tea berry, ground berry, ground ivy, hill berry, &c.

Its root is horizontal, creeping, slender, yellowish, with few fibres; stems several, upright, few inches high, slender; leaves terminal, unequal, few, from three to five, scattered; flowers few, white or flesh colored, terminal, on drooping stems, fruit has the appearance of a round scarlet perforated berry, of the size of a pea. Found on hills and mountains, in shady woods through the United States. The whole plant has a peculiar smell and taste, aromatic and sweet.

Wintergreen is stimulant, anodyne, astringent, emmenagogue, antispasmodic, diaphoretic, milky, and cordial; and a popular remedy in many parts of the country. It is generally used as a tea, but the essence and oil possess eminently all the properties, and are kept in the shops. The tea is used as a palliative in asthma, to restore strength, promote menstruation, also in cases of debility, in the secondary stage of diarrhœa, and to promote the secretion of milk in the breast; it is a very agreeable and refreshing beverage. The oil relieves the tooth-ache, or allays the pain of carious teeth. The Indians make great use of this plant as a stimulant, restorative, cordial, &c. It is injurious in fever. The oil is used as a disguise to many of the popular panaceas.

WITCH HAZLE.—*Hamamelis Virginiana*. Bark and leaves.

A shrub from six to ten feet high, with irregular, crooked, knotty branches, bark smooth, grey, with brown dots; leaves large, smooth, alternate, petiolate, end obtuse, nerves prominent. Flowers in short stems, clustered three to five together, in several places along the branches, yellow; fruit similar to a hazle nut. It is common on hills and mountains, and on the stony banks of streams, throughout the United States.

It is a sedative, antiseptic, astringent, tonic, discutient, &c. The Indians value this shrub highly, and it is much used by botanic physicians. The bark affords an excellent topical application for painful tumors and piles, external inflammations, sore and inflamed eyes; and also a wash for foul sores, corroded surfaces, sore mouth, &c., in cataplasm, poultice or wash. A tea is made of the leaves, and employed for many purposes, in bowel complaints, pains in the sides, menstrual effusions, bleeding at the stomach, &c. In the last case, the chewed leaves, decoction of the bark, or tea of the leaves, are all employed with great advantage. A strong infusion is given in injection for bowel complaints. It is a mild and efficient astringent and antiseptic in all cases.

WORMWOOD.—*Artemisia Absinthium*. Leaves and flowering heads.

The common wormwood is a perennial herb, growing wild on the road sides, and is cultivated in gardens; the smell of the leaves is disagreeable, and their taste intensely bitter. It is used in stomach complaints, and is of great service to hypochondriacs. It is also employed in intermittent fevers, in cachectic and dropsical affections, in jaundice and against worms. An infusion of the leaves is a good stomachic, and with the addition of fixed alkaline salts proves a powerful diuretic in some dropsical cases.

The essential oil is used both externally and internally, for destroying worms. The herb being an excellent antiseptic, is often employed in fomen-

tations to resist putrefaction; and if the plant be macerated in boiling water, and repeatedly applied to a bruise, by way of cataplasm, it will not only speedily remove the pain, but also prevent the swelling and discoloration of the parts.

YARROW.—*Millefolium*. The herb.

Common yarrow is a frequent inhabitant of dry pastures and fields; stem erect, furrowed, hairy, branched at top; leaves alternate, cut into a multitude of very small linear subdivisions; flowers white, forming a large, flat topped, crowded corymb. The plant has a strong penetrating smell.

Yarrow possesses considerable medicinal virtue, as a detergent, purifies the blood, opens pores, removes obstructions, &c. It is said that a table spoonful of the juice of this plant taken twice a day, and the brised herb applied over the cancer, after washing it with the juice, has cured a cancer of the breast. It stops spitting of blood, and cures the bleeding piles and dysentery. It may be used in decoction, sweetened with honey, and taken freely. By applying the pounded green leaves over a bruise and drinking the infusion, it dissipates it in a few days.

COLLECTION AND PRESERVATION

OF

MEDICAL PLANTS.

Each of the kingdoms of nature furnishes articles which are employed in medicine, either in their natural state or after they have been prepared by the art of pharmacy.

In collecting these, attention must be paid to select such as are most sound and perfect, to separate from them whatever is injured or decayed, and to free them from all foreign matters adhering to them.

Those precautions must be taken which are best fitted for preserving them. They must in general be defended from the effects of moisture, too great heat or cold, and confined air.

When their activity depends on their volatile principles, they must be preserved from the contact of the air as much as possible.

As the vegetable kingdom presents us with the greatest number of simples, and the substances belonging to it are the least constant in their properties, and most subject to decay, it becomes necessary to give a few general rules for their collection and preservation.

Vegetable medicines should be collected in the countries where they are indigenous ; and those which grow wild in dry soils and high situations, fully exposed to the air and sun, are in general to be preferred to those which grow in moist, low, shady, or confined places.

Roots which are annual, should be collected before they shoot out their stalks or flowers ; biennial roots, in the harvest of the first, or spring of the second year ; perennial, either in the spring before the sap has begun to mount, or in harvest, after it has returned.

Those which are worm eaten or decayed are to be rejected. The others are immediately to be cleansed with a brush and cold water, letting them lie in it as short a time as possible ; and the fibres and little roots, when not essential are to be cut away.

Roots which consist principally of fibres and have but a small top, may be immediately dried. If they be juicy, and not aromatic, this may be done by a heat not exceeding 100° of Fahrenheit ; but if aromatic, by simply exposing them, and frequently turning them in a current of cold dry air ; if very thick and strong, they are to be split or cut into slices, and strung upon threads ; if covered with a tough bark, they may be peeled fresh and then dried. Such as lose their virtues by drying, or are directed to be preserved in a fresh state, are to be kept buried in dry sand.

No very general rule can be given for the collection of herbs and leaves, some of them acquiring activity from age, and others, as the mucilaginous leaves, from the same cause losing the property for which they are officinal. Aromatics are to be collected after the flower buds are formed ; annuals, not

aromatic, when they are about to flower, or when in flower: biennials, before they shoot, and perennials, before they flower, especially if their fibres become woody.

They are to be gathered in dry weather, after the dew is off them, or in the evening before it falls, and are to be freed from decayed, withered, or foreign leaves. They are usually tied in bundles, and hung up in a shady, warm, and airy place; or spread upon the floor and frequently turned. If very juicy, they are laid upon a seive, and dried by a gentle degree of artificial warmth.

Sprouts are collected before the buds are open; and stalks are gathered in autumn.

Barks and leaves are collected when the most active part of the vegetables are concentrated in them, which happens in the spring and autumn. Spring is preferred for resinous barks; and autumn for others, which are not resinous but rather gummy. Barks should be taken from young trees, and freed from decayed parts and all impurities.

The same rules direct the collection of woods; but they must be taken from very young trees. Among the resinous woods, the heaviest, which sink in water, are selected. The rough bark is to be rejected.

Flowers are collected in clear dry weather, before noon, but after the dew is off; either when they are about to open or immediately after they have opened. Of some, the petals, or colored flower leaves, only are preserved, and the colorless claws rejected; of others whose calyx, or outer covering, is odorous, the whole flower is kept. Flowers which are too small to be plucked singly, are dried with part of the stalk. These are called heads, or tops.

Flowers are to be dried nearly as leaves, but more quickly, and with more attention. As they must not be exposed to the sun, it is best done by a slight degree of artificial warmth.

Seeds and ripe fruits, unless when otherwise directed, are to be gathered when ripe, but before they fall spontaneously. Some bulky fruits are freed from their core and seeds, strung upon threads, and dried artificially. They are in general best preserved in their natural coverings, although some, as the colocynth, are peeled; and others, as the tamarind, preserved fresh. Many of these are apt to spoil, or become rancid; and as they are then not fit for medical use, no very large quantity of them should be collected at a time.

The proper drying of vegetable substances is of the greatest importance. It is often directed to be done in the shade, and slowly, that the volatile and active particles may not be dissipated by too great a heat; but this is an error, for they always lose more by a slow, than by a quick drying. When, on account of the color, they cannot be exposed to the sun, and the warmth of the atmosphere is insufficient, they should be dried by an artificial heat, not exceeding 100° Fahrenheit, and well exposed to a current of air. When perfectly dry and friable, they have little smell; but after keeping for some time, they attract moisture from the air, and regain their proper odor.

The boxes and drawers in which vegetable matters are kept, should not impart to them any smell or taste; more certainly to avoid this, they should be lined with paper. Such as are volatile, or of delicate texture, or are subject to suffer from insects, must be kept in well covered glasses. Fruits and oily seeds, which are apt to become rancid, must be kept in cool and dry, but by no means a warm or moist air.

Oily seeds, odorous plants, and those containing volatile principles, must be collected fresh every year. Others, whose properties are more permanent, and not subject to decay, will keep for several years.

Vegetables collected in a moist and rainy season, are in general more watery and apt to spoil. In a dry season, on the contrary, they contain more oily and resinous particles, and keep much better.

PART IV.

Under this Department are included METALLIC, MINERAL, AND ANIMAL REMEDIES IN COMMON USE.

ANTIMONY.

The pure metal obtained from the ore, is of a silvery white lustre, and plated texture, moderately hard, and very brittle; easily fusible, and volatilized by a heat not very intense; oxydized by exposure to the air, at a temperature moderately increased; and when oxydized, capable of combining with most of the acids.

The antimonial metal is a medicine of great power; a quantity too minute to be sensible in the most delicate balance, is capable of producing violent effects, if taken in solution. Some of its preparations, however, are given internally, being rendered milder in their operation. They are principally employed in cutaneous affections, and in fevers, to produce purging, vomiting, and diaphoresis.

The following are the principal preparations of this metal now in use:

Antimonial Powder—oxide of antimony with phosphate of lime. This substance (James' Powder) has been long celebrated as a remedy in febrile affections. It acts as a very general evacuant, occasioning sweat, purging, and frequently vomiting. Its dose is from five to six grains, repeated every six hours until its effects are obtained. It is better adapted to fevers of an inflammatory nature, than to those of the typhoid kind.

Emetic Tartar—tartrate of antimony. Of all the preparations of antimony this is the most certain in its operation. In doses of one to eight grains, it operates as an emetic, and sometimes as a cathartic. In smaller doses it excites nausea, and proves a powerful diaphoretic and expectorant. As an emetic, it is chiefly given in the beginning of fevers, and whenever it is wished to evacuate the contents of the stomach quickly. In great debility, its use is improper, and sometimes proves fatal: in all cases its operation is severe and straining. As a diaphoretic, it is given in small doses, of from an eighth to a quarter of a grain. The only proper form of administering it is in solution, and in divided doses, at short intervals, if we wish to excite vomiting.

ALUM.

Alum, from its astringent power, is employed to check hæmorrhage and serous evacuations. It has been used, though less frequently, in intermittent fever, malignant small pox, and painter's colic. Its dose is from five to fifteen grains. The addition of an aromatic is generally necessary, however, to prevent nausea when it is given in the solid form. The best form of ad-

ministering it, is that of alum whey, prepared by adding two drachms of the powdered alum to a pint of hot milk. The dose of this is three or four ounces. In uterine hæmorrhage and diabetics, this whey taken to the quantity of three or four ounces, three times a day, has produced very favorable effects.

It is also used externally in astringent and repellant lotions, and eye waters. Burnt alum, taken internally, has been highly extolled in cases of colic. When taken to the extent of a scruple at a dose, it is said to gently move the bowels, and give relief from the severe pain. Burnt alum is applied as an escharotic to fungous flesh.

ALCOHOL.—*Spirit of Wine.*

This is the active exhilarating ingredient in all vinous, fermented, or distilled liquors. It is the proportion of alcohol that renders wines more or less sour, and prevents their becoming acid. Ardent spirits, such as brandy, rum, and whiskey, consist almost entirely of three ingredients, viz., water, alcohol, to which they owe their strength, and a small quantity of a peculiar oil, upon which their flavor depends. From vinous liquors alcohol is obtained by distillation; and it is by the repetition of this process, with a small portion of potash, that pure alcohol is obtained. It is colorless, and its specific gravity to that of water, as 835 to 1000.

On the living body alcohol acts as a most violent stimulus. It coagulates the fluids, and corrugates the solids. Applied externally, it strengthens the vessels, and may thus restrain passive hæmorrhage. It constantly contracts the extremities of the nerves it touches, and deprives them of sense and motion.

This liquor received undiluted into the stomach, produces the same effects, contracting all the solid parts with which it comes in contact, and destroying, at least for a time, their use and office. In a moderate dose, it produces a high state of excitement, both of body and mind, which is followed by proportional languor: if the quantity be considerable, a palsy or apoplexy follows, which frequently ends in death. Alcohol is scarcely employed in its pure state as a medicine, but extensively under the form of vinous and spirituous liquors, which afford our most powerful stimulants. Wines seem more permanent in their stimulant operations than ardent spirits; hence they are superior in tonic power, though inferior in producing a sudden stimulus.

From the long continued use of alcohol, many diseases derive their origin, as dyspepsia, hypochondriasis, and visceral obstructions, occasioning dropsy. These may be ascribed to the exertion of its stimulant power, by which the irritability of the stomach and other viscera is destroyed, and indirect debility produced.

Alcohol is used externally as a stimulant in muscular pains, and also as an application to recent burns. In pharmacy, it is employed as a solvent of the active matter of many vegetable and some animal productions. Diluted with an equal weight of water, it forms proof spirits.

Ardent spirits, like wine, in small quantities, prove a powerful cordial, and for the time, a strengthening beverage. They increase the circulation, raise the pulse, give vigor to the stomach, promote digestion, and prevent flatulence. Thus they are of great service in counteracting the influence of a moist and cold atmosphere, and of noxious exhalations, and consequently are fitted for those employed in occupations of an unwholesome nature. To the weakly and relaxed, they are highly useful, by giving an elasticity and firmness of tone. But in a rigid habit, they are equally pernicious, by producing a dryness of fibre and prematurely hastening the approach of age. The abuse of ardent spirits is also productive of much more fatal effects than an immoderate use of wine. Wine may be said for the most part to sap the con-

stitution by degrees; spirits, on the contrary, attack it by storm, and at once prey upon the spirit of existence.

SAL AMMONIAC.—*Muriate of Ammonia.*

Sal ammoniac is found native, especially in the neighborhood of volcanoes. It was first prepared in Egypt from the soot of camel's dung, by sublimation. But the greatest part of that now used, is manufactured in Europe, either by combining directly ammonia with muriatic acid, or by decomposing the sulphate of ammonia by means of muriate of soda, or the muriates of lime and magnesia by means of ammonia. It is prepared in solid masses, semi-transparent, and somewhat ductile. It is volatile in a small degree of heat; its alkali is extricated in pungent vapors on the admixture of quick lime; its acid is extricated in white fumes, on pouring concentrated sulphuric acid upon it. It dissolves in rather less than three times its weight of water.

Sal ammoniac, when pure, promotes perspiration, and in some cases, increases the secretion of urine. A drachm of it dissolved in water, if the patient be kept warm after taking it, generally proves sudorific; given in a larger dose, it proves aperient; and in a still larger, it acts as an eretic. As a cooling and diaphoretic medicine, it may be dissolved in vinegar or water, and taken in fevers, &c.

This salt has also been employed externally in lotions and embrocations, for scirrhus and other indolent tumors; for removing warts and other excrescences; for inflammations; and in gargarisms for quinsy. Externally applied, sal ammoniac is a valuable remedy. It may act in two ways: 1. By the cold produced during its solution. It is from this cause that fomentations of sal ammoniac prove beneficial in mania, apoplexy from plethora, injuries of the head, and violent head-aches. When used with this intention the solution should be applied as soon as it is made. 2. By the stimulus of the salt. On this principle we may explain its action as a discutient in indolent tumors of all kinds, contusion, gangrene, itch, ophthalmia, quinsy, and in stimulating clysters. In some cases, as in chilblains and other indolent inflammations, both modes of action may be serviceable. When first applied, the coldness of the solution will diminish the sense of heat, and uneasiness of the part, and the subsequent stimulus will excite a more healthy action in the vessels.

Carbonate of Ammonia.—This is the prepared ammonia; it has the taste and smell of ammonia, but weaker, and is efflorescent when exposed to the air.

The volatile alkali and spirit obtained from sal ammoniac, are the purest of all the medicines of this kind. They are somewhat more acrimonious than those produced directly from animal substances which always contain a portion of the oil of the subject, and receive from thence some degree of a soapy quality.

The volatile salt and spirit prepared from hartshorn and animal bones, are now entirely superseded by those obtained from the sal ammoniac.

Volatile alkaline salts and their solutions, called spirits, by their stimulating smell, prove serviceable in languors and faintings. Taken internally, they stimulate, greatly promote perspiration, and act particularly on the nervous system. They prove useful in lethargic cases; in hysteric and hypochondriac disorders, and in the languors, head-aches, flatulent colics, and other symptoms which attend them. In some fevers, particularly those of a low kind, in aged persons, and those of phlegmatic habits, and accompanied with a cough, hoarseness, &c., they are of great utility, raising the vital principle, and exciting a salutary diaphoresis. The dose of the salt is from five to fifteen grains, and of the spirit thirty or forty drops in cold water.

The spirit of sal ammoniac has been employed with complete success in the cure of the bites of venomous snakes. The dose in this case should be forty drops of the caustic volatile alkali immediately after the accident; and repeated every five minutes; while the parts affected are continually washed with the same preparation.

BORAX.—*Sub Borate of Soda.*

The salt, consisting of boracic acid united with soda, is brought from Thibet, where it is found in its native state. It is purified in Europe by crystallization; its taste is cool; it is soluble in eighteen parts of cold and six of hot water.

The medicinal virtues of borax have not been sufficiently ascertained by experience: in doses of half a drachm or two scruples, it is supposed to be diuretic, emmenagogue, and a promoter of delivery. A solution of borax in water is one of the best applications for healing cankerous crusts, or the thrush in the mouths and fauces of children; or it may be applied for the same purpose in the form of powder mixed with sugar. It is one of the most useful applications to sore nipples or chapped lips and hands in winter; for these purposes a few grains of borax may be dissolved in warm water, with the addition of a little pure honey.

BLUE VITRIOL.—*Sulphate of Copper.*

This article is made by stratifying plates of copper with the sulphur; and on slow combustion the sulphuric acid corrodes the copper; the metal is then boiled in water, till the saline particles are dissolved; when, after repeated solution and subsequent evaporation, the whole is reduced to the crystalline mass.

The sulphate of copper has a strong styptic metallic taste, and is chiefly used externally as an escharotic for destroying warts, callous edges, and fungous excrescences, as a stimulant application to ill-conditioned ulcers, and as a styptic to bleeding surfaces. Taken internally, it operates, in very small doses as a very powerful emetic. It has, however, been exhibited in incipient consumption, intermittent fever and epilepsy; but its use is not free from danger.

CANTHARIDES.—*Spanish Flies.*

The cantharides is an insect collected from the leaves of plants in Spain and Italy, and dried in the sun. It is of a lively green color, has a faint unpleasant smell, and a taste slightly acrid. The active matter of this insect inflames and excoriates the skin, and is used as the basis of the common blistering plasters. Taken internally, they often occasion a discharge of blood by urine, with exquisite pain; if the dose be considerable they seem to inflame and exulcerate the whole intestinal canal; the stools become mucous and purulent; the breath fetid and cadaverous; intense pains are felt in the inferior portion of the abdomen; the patient grows giddy, faints, and dies.

Applied to the skin they first inflame and afterward excoriate the part, raising a more perfect blister than any of the vegetable acids, occasioning a more plentiful discharge of serum. But even the external application of cantharides is often followed by strangury, accompanied with thirst and feverish heat. The inconveniencies arising from the use of cantharides, whether taken internally or applied externally, are best obviated by drinking plentifully of bland emollient liquids, such as milk, decoctions of barley, linseed, solutions of gum arabic, &c., or by pouring warm water from a bottle upon

the lower part of the abdomen as the person lies in bed. Internally administered, it acts with much violence on the urinary passages. In dropsy, it has been given as a diuretic, in doses of one grain once or twice a day, or a few drops of the tincture continued for some time; it has been prescribed in a similar manner in obstinate gleet and fluor albus, and in retention of urine arising from debility of body, of the bladder; or in the opposite affection of the diabetes, incontinence of urine, from debility of the constrictor.

Applied externally, cantharides are one of our best and most powerful remedies. By proper management they may be regulated so as to act as a gentle stimulus, as a rubefacient, or as a blister.

Blisters may be employed with advantage in almost all diseases accompanied with typhus fever, especially if any important organ, as the brain, lungs, or liver be at the same time particularly affected. In these cases the blisters are not applied to the diseased organs themselves, but as near them as may be convenient. When we wish to excite action in an organ, the blisters are, if possible, applied directly to the diseased organ.

After a blister has been raised, it is often of advantage to convert the serous into a purulent discharge by exciting a suppuration, which is done by applying to the blistering part any acid stimulating ointment, one, for example, containing a small proportion of cantharides, which answers the purpose by the irritation it keeps up.

CASTOR.—*The Beaver.* The substance collected in the follicles near the anus, called castor.

The beaver is an amphibious animal, which inhabits the Northern parts of Europe, Asia, and America; in the banks of rivers, or lakes, and at a distance from the habitations of men. Near the rectum of both sexes, there are two little bags, about the size of a hen's egg, containing a brownish oily matter, called *castor*, which is a peculiar deposition of fat, interwoven with cellular membrane. This substance has a disagreeable narcotic odor, and a bitterish, acrid, nauseous taste. By drying it in the smoke of a chimney, it may be preserved seven or eight years. The best castor is brought from Russia, Prussia, and Poland; that procured in Canada and New-England is of an inferior quality. That which is very old, quite black, and destitute of smell and taste is unfit for medicinal use.

To preserve this drug from injury, it should be kept wrapt up in bladders, or oiled paper. Its active matter is dissolved by alcohol, proof spirits, and partially by water. The tincture made by the diluted alcohol, is the least nauseous.

Castor is an excellent antispasmodic, and acts principally on the uterine system. It is given with advantage in most spasmodic diseases, particularly in hysteria and epilepsy. In powder which is the most eligible form, it is exhibited in doses of from ten to twenty grains, or from one to two drachms of the tincture.

CHARCOAL OF WOOD.—*Carbo Ligni.*

Common charcoal of wood, or carbon, is a sort of artificial coal, consisting of half burnt wood. It is in the form of solid masses of a black color, is brittle, and has neither smell nor taste. It consists of 63, 86 of carbon, and 36, 14 of oxygen.

Charcoal possesses a number of singular properties, which render it of considerable importance in many respects. It is incapable of putrifying or rotting like wood: and so remarkable is the durability of this substance, that it may be preserved to an indefinite length of time. Besides the great advantage which this article affords to the artist and manufacturer, it has of late

been employed with considerable success ;—first, in correcting the burnt or smoky taste in ardent spirits :—secondly, in depriving rancid oil of its disagreeable flavor :—and thirdly, in restoring putrid meat. For these useful purposes it should be previously reduced to powder, and that only used which is fresh prepared, or has been kept in close vessels, that it shall have absorbed no fixed air from the common atmosphere. The tainted flavor of ardent spirits may be entirely destroyed, by merely shaking it with powdered charcoal.

Charcoal is of still greater utility for purifying water on shipboard. The most offensive water may be rendered perfectly sweet, by merely filtrating it through maple, hickory, or oak coal and sand. On account of its absorbent and antiseptic properties, this substance promises to be of considerable service in medicine. It has been found to arrest the progress of mortification, when applied in the form of medicated poultice, or united with yeast, to the affected part. In a variety of instances, it has been found to have a remarkable effect in removing habitual costiveness, without inducing an extraordinary degree of weakness, especially if mixed with syrup of roses. Many persons afflicted with that disagreeable complaint, a foetid breath from a costive habit, have obtained effectual relief by taking two or three times a day a table spoonful of each of the above articles. Charcoal made from maple wood, or burnt bread, finely powdered, makes a simple, efficacious, and safe tooth powder, which is preferable to any other. It neutralizes and entirely destroys for a time, any fetor which may arise from a carious tooth. It has lately been found to assist greatly in the cure of scald head, by being sprinkled over the ulcer in fine powder.

The most eligible process for preparing charcoal for medicinal purposes, free from all impurities and disagreeable taste, is to inclose small billets of wood in an iron cylinder, having a tube fixed to one end, and distil them until no more smoke and water escape from the tube. Then put out the fire, and close the mouth with clay, until the cylinder cools. The barrels of old guns, or pistols, may serve for this purpose; or the pieces of wood may be put into a pot not closely covered, and surrounded with live coals until all smoke from the pot shall cease. Then remove the coals, and closely lute the cover with clay, until the pot cools. Or, pulverize some well burnt charcoal, and then heat it in a covered crucible to a glowing heat, till it cease to give out any inflammable vapor. It should be immediately secured in well stopped glass bottles, and in that way it may be preserved unimpaired for any length of time.

CARBONATE.

Is a generic name for the combinations of the carbonic acid with earths, alkalies, and metallic oxyds.

The most general character of the carbonates is their effervescing violently when any of the stronger acids are poured upon them. This phenomenon is owing to these acids displacing, by their greater affinity, the carbonic acid, which flies off in the form of gas.

The carbonates may be divided into three great families: the alkaline, the earthy, and the metallic. 1st. The alkaline carbonates have an acrimonious taste, tinge vegetable blues green, and are soluble in water, and insoluble in alcohol. 2d. The earthy carbonates are insipid, and insoluble in water, but soluble in water saturated with carbonic acid. 3d. The metallic carbonates scarcely differ in appearance from the metallic oxyds.

CHALK.—*Carbonate of Lime.*

The white chalk, is a carbonate of lime found abundantly in nature; it always contains more or less earth, from which, and other impurities, it is freed by levigation and washing. It is then termed prepared chalk, and is very commonly employed as an antacid. As the salt it forms with the acid in the stomach has no purgative quality, it is the one commonly employed to check diarrhœa proceeding from acidity. It is given in the dose of one or two drachms, with the addition of a small quantity of any aromatic. The chalk julep will be found a valuable preparation.

COPPER.—*Cuprum.*

This has a more perceptible smell and taste than any other metal. Its effects when taken into the stomach, are highly deleterious and often fatal. It particularly affects the first passages, exciting excessive nausea, vomiting, colic pains and purging, sometimes of blood, or, though more rarely, obstinate constipation, and other violent symptoms of mineral poison.

Great care ought to be taken that acid liquors, or even water designed for internal use, be not suffered to stand long in vessels made of copper; otherwise they will dissolve so much of it as to give them very dangerous properties. But although copper be thus dangerous, some preparations of it have been used in certain cases, both externally and internally. Its tonic power, like that of zinc, is estimated by its successful exhibition in epilepsy, and some other spasmodic diseases.

Verdigris.—This substance is a kind of rust of copper, prepared by corroding the metal with vinegar. Verdigris is never used internally: applied externally, it proves a gentle detergent and escharotic, and is employed to destroy callous edges or fungous flesh in wounds, cancers, &c.

EPSOM SALT.—*Sulphate of Magnesia.*

This salt is found in mineral waters, whence it has been extracted, but it is at present principally prepared by art from the liquor remaining after the crystallization of sea salt from sea water, which holds a quantity of muriate of magnesia dissolved. When pure, it forms large regular crystals. They are soluble in nearly an equal weight of water. Their taste is extremely bitter.

This salt is used as a very common purgative, in dose of an ounce or more, dissolved in a large quantity of water. Though its taste is loathsome, it remains better on the stomach than many other cathartics, especially when given in small repeated doses. It is a mild and gentle purgative, operating with considerable efficacy and with safety. It is of a cold nature, however, and apt to have a debilitating effect, inducing weakness of the blood, dropsy, &c. For these reasons, I seldom prescribe it.

Glauber's salt, or sulphate of soda, possesses qualities similar to the above, and is exhibited in the same manner, except that a smaller dose is required; from half an ounce to an ounce being sufficient.

ETHER.—*Sulphuric Ether.*

Ether, properly prepared, has a penetrating diffusive odor, and a very pungent taste. It is highly volatile evaporating rapidly at the common temperature of the atmosphere. It is soluble in ten parts of water, and combines with alcohol in every proportion. The different ethers, as produced by different acids, vary in their composition and proportions. They are the lightest and most volatile of all known fluids, and are highly inflammable.

In their medicinal powers the ethers resemble alcohol, but they are rather less permanent in their action.

Sulphuric ether, or that obtained by the action of sulphuric acid on alcohol, is principally used. As a medicine taken internally, it is an excellent antispasmodic, cordial, and stimulant. It has been used in cases of rheumatism, gout, and whooping coughs with success. In a paroxysm of suffocating asthma, and all those diseases where the organs of respiration are affected, half a tea spoonful of ether in a table spoonful of water, quickly swallowed and occasionally repeated, has often produced instant relief. It is given as a cordial in nausea, and in febrile diseases of the typhoid type; as an antispasmodic in hysteria and in other painful and spasmodic diseases: as a stimulus in sleepy and apoplectic affections: and to mitigate the unpleasant sensation of sea sickness.

Generally, practitioners seldom give so much as half an ounce, much more frequently only a few drops for a dose; but others, more bold, have sometimes ventured upon much larger quantities, with incredible benefit.

When applied externally it is capable of producing two very opposite effects, according to its management; for if it be prevented from evaporating by covering the place to which it is applied by closely applying the hand, it proves a powerful stimulant and rubefacient, and excites a sensation of heat. In this way it is frequently used for removing pains in the head; and it is said that, applied to the affected jaw, and repeated till the pain ceases, it is a never failing remedy for the tooth-ache. But if it be dropped on any part of the body, exposed freely to the contact of the air, its rapid evaporation produces an intense degree of cold; in this way it has frequently facilitated the reduction of strangulated hernia.

HONEY.—*Mel.*

A sweet, fragrant, vegetable juice, collected by bees from the flowers of various plants, and deposited in the cells of the comb. The honey produced by young bees, and which flows spontaneously, is purer than that expressed from the comb; hence it is called virgin honey: the best sort is of a thick consistence, and a whitish color inclining to yellow; it possesses an agreeable smell and pleasant taste.

In some situations where noxious plants abound, poisonous honey is met with, from the bees feeding on such flowers. As an article of food, when immoderately used, honey is pernicious to weak stomachs; it ought, therefore, to be avoided by persons liable to eruptions of the skin, or in whom there is a redundancy of bile.

This vegetable substance contains an acid similar to that of sugar, but is more spirituous; hence it readily ferments, occasioning flatulency, and in some habits produces gripes and looseness. As a medicine, however, it is a very useful aperient and expectorant, especially when it has been previously boiled; in which state it may be used with safety and advantage by asthmatic patients: for it tends to dissolve viscid humors and promote the expectoration of tough phlegm.

IRON.—*Ferrum.*

A metal very abundant in nature, of a bluish gray color, ductile, scarcely fusible but easily oxydated in atmospheric air, and subject to rust.

The general virtues of this metal, and the several preparations of it are, to constrict the fibres, to quicken the circulation, to promote the different secretions in the remoter parts, and at the same time to repress inordinate discharges into the intestinal tube. After the use of them, if they take effect, the pulse is very sensibly raised; the color of the face, though before pale,

changes to a florid red; the uterine, urinary and cuticular eruptions are increased.

When given improperly, or to excess, iron produces headache, anxiety; heats the body, and often causes hæmorrhage, or even vomiting, pains in the stomach, spasms and pains in the bowels.

Iron is given in most cases of debility and relaxation; in passive hæmorrhages; in dyspepsia, hysteria and green sickness; in most of the cachexia; and, in general debility, produced by disease or excessive hæmorrhagy.

When either a preternatural discharge, or suppression of natural secretions, proceed from a languor and sluggishness of the fluids and weakness of the solids, this metal by increasing the motion of the former, and the strength of the latter, will suppress the flux, or remove the suppression; but where the circulation is already too quick, the solids too tense and rigid, when there is any stricture or spasmodic contraction of the vessels, iron, and all the preparations of it, will aggravate both distempers.

Iron is employed in the following preparations:

The Black Oxide of Iron.—Such are the scales of iron found at the foot of the blacksmith's anvil. In these, the iron is oxydized to that degree in which it is soluble in acids, without the production of hydrogen gas: therefore, when taken into the stomach, they do not produce the distention and flatulence occasioned by the use of iron filings.

Rust of Iron.—Carbonate of iron. Moisten purified filings of iron frequently with water, that they may be converted into rust, which is to be ground into an impalpable powder.

During exposure to air and moisture, iron is oxydated, and this oxyd is found combined with carbonic acid, absorbed, probably, from the atmosphere.

As a chalybeate, it is more active than the pure metal, and more mild than the other saline combinations of iron. Its dose is from ten to twenty grains.

Precipitated Carbonate of Iron.—This is precipitated from a solution of sulphate of iron with carbonate of soda. The precipitate when first formed, contains the iron in the state of black oxyd; but in the process of drying, it absorbs more oxygen, becomes of a red color, and is converted into the carbonate of red oxyd of iron.

This carbonate of iron is an excellent and safe chalybeate. It may be given as a tonic in doses of from five to thirty grains; but all chalybeates answer better in small doses frequently repeated, than in large doses.

Salt of Steel.—Sulphate of iron. This is one of the most active preparations of the metal, and is frequently employed in cachectic cases, and green sickness, for exciting the uterine discharges, strenghtening the tone of the viscera, and destroying worms. Its medium dose is from three to five grains.

There are other preparations of iron, as the martial flowers, the red oxyd of iron, dried sulphate of iron, &c. but they are superseded, and out of use.

LIME.—*Calx.* Quick lime.

This article is of a soft, white, friable substance, prepared from marble, chalk, and other calcareous earths, by the process of calcination. All calcareous earths, whether in the form of marble, lime-stone, chalk, marine shells, &c., are convertible into quicklime by the action of heat.

These substances are found in a state of combination with the carbonic acid or fixed air. During the process of calcination, the carbonic acid is expelled from the carbonates, in the state of gas or air; and the product is quicklime in a caustic state. As the quicklime attracts moisture and carbonic acid from the atmosphere, it should always be recently prepared or preserved in very close bottles for medicinal use.

On the living body, lime acts as an escharotic, and as such was formerly applied to ill-conditioned sores; but it is now principally used in pharmacy, for the purpose of forming lime-water, and as a chemical agent, in several preparations.

Lime Water.—Preparation: take of lime recently burnt, half a pound; put it into an earthen vessel, and sprinkle on it four ounces of water, keeping the vessel shut, while the lime grows hot, and falls into powder. Then pour on it twelve pounds of water, and mix the lime thoroughly with the water by agitation. After the lime has subsided, repeat the agitation; and let this be done about ten times, always keeping the vessel shut, that the free access of the air may be prevented. Lastly, let the water be filtered through paper, placed in a funnel, with glass rods interposed between them, that the water may pass as quickly as possible. It must be kept in very close bottles.

Lime water is transparent and colorless. It has an austere, acrid taste, and affects vegetable colors as the alkalis do. When applied to the living fibre, lime water corrugates and shortens it; it therefore possesses astringent powers. It is also a very powerful antacid; or at least, it combines with and neutralizes acids when it comes in contact with them. It dissolves mucus, and kills internal worms. From possessing these properties, it is used as medicine, in diseases supposed to arise from laxity or debility of the solids, as diarrhœa, diabetes, flour albus, asthma, scrofula, and scurvy; in affections of the stomach accompanied with acidity and flatulence, when the intestines are loaded with mucus; and in worms. Lime water is scarcely capable of dissolving, even out of the body, any of the substances of which urinary calculi consists; it has therefore no pretensions to the character of a lithontripitic. It has also been recommended in the scabby crust on the faces of children, in cancer, and chronic cutaneous diseases. Externally it is applied to ill conditioned ulcers, gangrenous sores, as a wash in scald head, and itch; and as an injection in gonorrhœa, fistulas and ulcers of the bladder. When taken internally, its taste is said to be best covered by luke warm milk. Its dose is commonly from two to four ounces, frequently repeated; but when long continued it weakens the organs of digestion.

LUNAR CAUSTIC.—*Nitrate of Silver.*

To form this substance, silver is oxydized and dissolved by nitrous acid. It is a strong caustic, and possesses the advantage of being easily applied. It is therefore the one in most general use, for consuming fungous excrescences, callous edges, warts, strictures in the urethra, and the like. It is also employed to destroy the venereal poison in chancres, before it has operated on the system. A weak solution of it may be applied as a stimulus to indolent ulcers, or injected into fistulous sores.

MAGNESIA.—*Carbonate of Magnesia.*

The carbonate of magnesia, is a very light, white, opaque substance, without smell or taste, effervescing with acids. It is principally given to correct acidity of the stomach, and in these cases to act as a purgative, for solutions of magnesia in all acids are bitter and purgative. A large dose of magnesia, if the stomach contain no acid to dissolve it, neither purges, nor produces any sensible effect; a moderate one, if an acid be lodged there, or if acid liquors be taken after it, procures several stools; whereas the common absorbents, under the same circumstances, instead of loosening, bind the abdomen.

When the carbonate of magnesia meets with an acid in the stomach, there is extricated a considerable quantity of carbonic acid gas, which sometimes causes uneasy distension of the stomach, and the symptoms of flatulence. In such cases, therefore, magnesia, is preferable to its carbonate; but on

other occasions, good effects arise from the action of the gas evolved, as in nausea and vomiting. It is given as an antacid, in a dose of from a scruple to a drachm.

MAGNESIA. Calcined Magnesia.

Let carbonate of magnesia be put into a crucible, and kept in a red heat for two hours; then put up in close stopped glass vessels. By this process the carbonate of magnesia is freed from its acid and water.

In medicine, it is used for the same general purposes as the carbonate. In certain affections of the stomach, accompanied with much flatulency, magnesia is preferable, both because it contains more magnesia in a given bulk, and being deprived of its acid, it neutralizes the acid of the stomach, without extricating gas, which is often a very troublesome consequence, when carbonate of magnesia is employed in these complaints.

MUSK.—From the Musk Deer.

The substance contained in a follicle near the navel.

The musk animal is an inhabitant of China, India and Tartary. It is a gentle and timid animal, and in general form resembles the deer tribe. In the male, behind the navel, and before the prepuce, there is situated an oval bag, about three inches long and two broad. In the adult animal this sac is filled with a secreted matter, known by the name of musk.

Fine musk comes to us in thin round bladders, which are generally about the size of a pigeon's egg. The musk itself is dry, with a kind of unctuousity, of a dark reddish brown, or rusty black color, in small round grains, with very few hard black clots, and perfectly free from sandy or other visible foreign matter. Its taste is somewhat bitterish, and its smell extremely powerful and peculiar. Musk yields a part of its active matter to water, by infusion; by distillation the water is impregnated with its flavor; alcohol dissolves it, the impurities excepted.

Musk is a medicine of very great efficacy, and for which, in some cases there is hardly any substitute. When properly administered, it sometimes succeeds in the most desperate circumstances. It raises the pulse without heating much: it allays spasms, and operates remarkably on the brain, increasing the powers of thought, sensation and voluntary motion. It is administered with advantage in the greater number of spasmodic diseases, especially in hysteria and hiccup. In typhus it is employed to relieve the twitching of the tendons and other symptoms of a spasmodic nature. In cholera morbus it frequently stops vomiting, and, combined with ammonia, it is given to arrest the progress of gangrene. It is also used with the greatest advantage in eruptive and phlegmonic diseases, accompanied with typhoid fever, and also in chin cough, epilepsy, &c. Its dose is from six to twenty grains, repeated, if necessary, every five or six hours. It is best exhibited in the form of a bolus. To children it is given in the form of clysters, and is an efficacious remedy in the convulsions arising from dentition.

NITRE.—*Nitrate of Potash.* Salt-Petre.

This salt consisting of nitric acid and potash, is found ready formed on the surface of the soil in warm climates; it is procured in some parts of the United States.

Nitre is of a sharp, bitterish, penetrating taste, followed by a sensation of coldness. When pure it dissolves in about six times its weight of water, and on evaporating, the latter concretes into transparent crystals.

Purified nitre has been employed in numerous disorders. Its virtues are

those of a refrigerant and diuretic. It is usually given in doses, from two or three grains to a scruple, being a very cooling and resolvent medicine which, by relaxing the spasmodic rigidity of the vessels, promotes not only the secretion of urine, but at the same time insensible perspiration, in febrile disorders; it allays thirst and abates heat.

[Nitric acid is a very excellent medicine to reduce the heat of the body, and the force of the circulation. I make frequent use of it as a cooling diuretic, and have seen it cure salt-rheum, and relieve many eruptive diseases of the skin. I make great use of nitric acid combined with Dover's powder, in many forms of fever; a proper dose is five, ten or twenty grains at a time: it may be often repeated.]

This powerful salt, when inadvertently taken in too large quantity, is one of the most fatal poisons. There are several attested cases on record, and some recent instances might be added, in which from half to a whole ounce of salt petre has occasioned violent vomiting, convulsions, swelling, and other painful symptoms in persons, who by mistake, had swallowed it in a dissolved state, instead of Glauber, or similar salts. The most proper antidote in such distressing situations, will be a scruple or half a drachm of ipecac, with a tea cupful of sweet oil, and a large quantity of warm water to be drunk after it, to promote its operation, as an emetic. It will be necessary also to make use of copious and frequent draughts of mucilaginous decoctions, of marsh mallows, pearl barley, arrow root, &c., after which a gentle opiate will afford relief.

CREAM OF TARTAR.

["Tartaric acid combines with potash in two proportions; the one forming a neutral, the other an acidulous salt. The last is here noticed."]

This salt is a mild, cooling, aperient and laxative medicine, if half or a whole ounce of it be taken in substance, it proves an effectual purgative. Further, when dissolved in water, it affords, with the addition of sugar, an agreeable acidulated drink, which is of great service in ardent fevers; and likewise forms a pleasant beverage during the summer. It is also to be regarded as a valuable diuretic, and one which is efficacious in the treatment of dropsy. It is given under two modes of exhibition in which its effects are somewhat different. When given dissolved in a large quantity of water, to the extent of four or six drachms a day, it acts simply as a diuretic; when given to the same extent, gradually increases, in the form of an electuary, without the free use of diluents, along with a more or less diuretic effect, it acts as a hydragogue cathartic. The latter is the more usual, and perhaps, the more successful mode of exhibition.

PHOSPHORUS.

Phosphorus has never been found pure in nature. It is always met with united to oxygen, or in the state of phosphoric acid: in this state it exists very plentifully, and is united to different animal, vegetable, and mineral substances. It is principally obtained from bones, and urine. Phosphorus is one of the component principles of animal substances.

Phosphorus was scarcely known before it was employed as a medicine. But it has been principally in latter times, that phosphorus has attracted the attention of a large number of distinguished physicians who have made it an object of their particular attention. Among others who have written upon the subject, and related their experiments, is Dr. Lobstein, whose treatise contains many interesting and surprising facts, well worthy the attention of physicians.

The form which appears to be most advantageous for the exhibition of phosphorus, is its solution in sulphuric ether. It is the only form in which it can be employed without danger; because from a state of causticity the ether reduces it to a stimulating and strengthening restorative substance. It is also advantageous to add to the phosphoric ether a small quantity of distilled aromatic oil. The remedy thus becomes more active, and operates more regularly; the solution of the caustic is more perfect. To prevent its decomposition, it should be given in a little syrup, or on a lump of sugar.

The dose is not an object of less importance to be considered; how perfect soever may be the form of a medicine, if we transcend the proper dose, evil consequences may ensue. Experience has proved, that in a majority of cases one grain of phosphorus is a sufficient quantity to be taken in twenty-four hours. A general rule to be observed in prescribing phosphorus, is to commence with small doses, and to augment or diminish them as circumstances may dictate; and to discontinue its exhibition in those cases in which it produces excessive burning in the stomach, or vomiting.

Phosphorus is a remedy which extends its action over every part of the animal economy, but it is in the nervous system that it more particularly demonstrates its power. Its action is very prompt, intense, but not durable. It is one of the most powerful of the volatile stimuli, and is particularly calculated to revive failing vitality.

In acute diseases, as typhus, nervous fevers, &c., the effects of phosphorus are manifest sometimes in the course of about four hours. The temperature of the body is restored, perspiration produced, the pulse relieved; the urine is passed in greater quantities, and contains an unusual quantity of sediment; the bowels, if they have been constipated, become relaxed; the stools have a sulphurous odor, and are luminous in the dark: delirium ceases, and the patient recovers his mental powers; gentle sleep repairs his strength; his tongue becomes clean, the appetite returns, and in fine joy seems depicted on all his person.

These phenomena are differently manifested in individuals of different ages, also in different diseases. They are less observable in chronic diseases. When given to persons in health, it powerfully stimulates the genital organs.

It is proper, however, to remark, (says Lobstein,) that its salutary effects can only be obtained by attention to the rule previously mentioned, viz: that it should be perfectly dissolved in the vehicle in which it is given. Under such circumstances, if it is given in a mass it acts as a caustic, as a decided poison, whose impression on the nerves of the stomach and intestines causes the most acute pain, heat, and convulsions, trembling, weakness, and death. These consequences are violent in proportion to the quantity of the phosphorus given. Several instances are recorded of its causing death, when rashly used.

Among the diseases recorded by Dr. Lobstein, over which phosphorus triumphed when other remedies failed, are nervous fevers, typhus, irregular inflammation of the lungs, intermittents, periodical head-ache, heartburn, rheumatism, suppressed menses, green sickness, extreme weakness of the eyes, nervous debility, mania, gutta serena, palsy, &c.; but its virtues are most strikingly displayed in the last stages of putrid, malignant, and typhus fevers, when the vital spark is apparently about expiring: from this state it has often raised the patient, even when it seemed the height of folly to attempt relief. Generally the administration of phosphoric ether should be confined to cases of debility.

Phosphoric ether is prepared in the following manner:

Dissolve six grains of phosphorus in one ounce of sulphuric ether: the ether must be pure and highly rectified with the muriate of lime; the common adulterated ether of the shops will not dissolve it. The solution is not completed in less than three or four days. Six or seven grains of phospho-

rus is the extent that is soluble in an ounce of ether. To this solution one drachm of oil of gilly flower, or clove July flower, is added. Or, the phosphorus may first be decomposed in the oil, and then added to the ether.

Phosphoric ether, recently prepared, is not decomposed by cold water, because it floats on this fluid; but when diluted with alcohol and ether mixed with water, it acquires a milky appearance, and the phosphorus is separated in the form of an extremely fine powder, and precipitated.

The dose for an adult of the above preparation, may be from six drops, three or four times a day, to fifteen drops every two hours. Twenty-five drops have been given in an emergency, to prevent a fit or convulsion; but large doses should only be ventured on in extreme cases.

It is inferred from what has been said respecting the medical use of phosphorus, (says Lobstein,) that it is a remedy capable of producing extraordinary effects in various internal diseases: that it is extremely dangerous to administer it in substance, as in that form it is capable of acting as a caustic, and producing the most violent inflammation, gangrene, and death: that we should reject every form of its exhibition, in which it is not completely diffused throughout the vehicle in which it is given; such as pills, boluses, electuaries, emulsions, conserves, &c., from which it may become disengaged in the stomach: that its solution in sulphuric ether with the addition of a small proportion of aromatic oil appears to be the best form for its exhibition: that phosphorus exhibited in this form loses its caustic quality, and becomes simply a stimulant and restorative: that much caution is necessary in the exhibition of this remedy, and it should, therefore, be confined to judicious hands: that it should always be given in small doses in the beginning, and its quantity increased according to circumstances, and its use gradually relinquished: that it is not to be regarded as an universal panacea, capable of curing all inveterate diseases: that it need not be used until ordinary means have been tried: that its good effects are confined to diseases of debility, and chronic agues, in which its action is momentary, but very intense: that the diseases in which it has been successful are, typhus fevers, with extreme prostration of vital energy; in cases of complicated disorder; in obstinate intermittent fevers, rheumatisms, gout, chlorosis, and dropsy; and particularly in nervous disorders; such as apoplexy, fainting, paralysis, convulsions, epilepsy, mania, obstinate headache, gutta serena, and heartburn: Finally, phosphorus is found to be useful in cases of loss of blood, with diminution of strength, in emaciation, phthisis, and caries of the bones.

SODA.

Soda is obtained as well as potash, by burning vegetables. It is, however, only sea plants, or those that grow by the sea shore, that afford it: it has, therefore, been supposed that these plants may contain sea salt, or muriate of soda, and that it is from the decomposition of this salt that soda is derived.

Carbonate of Soda.—*Sal æratus.* This is an excellent alkali, and may be used for all the purposes of alkalies. It is preferable to potash.

SPERMACETI.

Spermaceti is a fatty matter, obtained from the head of a particular species of whale above mentioned. It is purified by melting and boiling with an alkaline solution. It is then in white flakes, is unctuous and friable, and has neither taste nor smell. Its chemical properties are the same as those of the expressed oils and fats, except that it does not easily unite with the alkalies.

Its medicinal virtues are those of a mild demulcent, and as such is given

in catarrh and gonorrhœa, mixed with sugar, or diffused in water by the medium of the yolk of an egg.

SUGAR. From the sugar cane.

The sugar cane grows wild in both the Indies, and forms the principal object of cultivation in the West Indies.

Sugar is a very wholesome and powerful article of nourishment; for during crop time, the negroes in the West Indies, notwithstanding their increased labors, always grow fat. It produces no particular effect as a medicine, except that the coarser and impure kinds are slightly purgative. In pharmacy it is principally employed to cover bad tastes, to give form, and to preserve more active substances. In using it for the last purpose, we must always remember that if the proportion of sugar employed be too small, it will promote instead of retarding the fermentation of the article it is intended to preserve.

Molasses, or treacle, is a very impure syrup, which remains after refining the sugar. Treacle is applied to many domestic economical purposes. Sugar candy is used by persons laboring under hoarseness and coughs; the violence of which it contributes to relieve, by lubricating the membranes and promoting expectoration.

SUBLIMED SULPHUR. Flowers of Sulphur.

Sulphur is a simple inflammable substance, found in nature nearly pure. It is the produce of volcanic countries.

Pure sulphur is of a light yellow color; is insipid; has a faint smell; when rubbed or heated is very fusible and volatile; and when heated in atmospheric air, burns with a blue flame and suffocating fumes.

Flower of sulphur relaxes the bowels and promotes insensible perspiration; it seems to pass through the whole habit, and manifestly transpires through the pores of the skin, as appears from the sulphurous smell of persons who have taken it, and from silver in their pockets imbibing a blackish cast.

Sulphur is a celebrated remedy against cutaneous diseases, both given internally and applied externally. It has likewise been recommended in coughs, asthmas, and other disorders of the chest and lungs; and particularly in catarrhs of the chronic kind. But it is probable that the benefit derived from it in these cases, is principally owing to a determination to the surface, and to its operation as a gentle laxative. And with this intention it is frequently used with great advantage in piles, and in many other diseases in which it is proper to keep the bowels open. The dose is two or three drachms in honey or molasses.

SULPHURIC ACID. Oil of Vitriol.

This acid is formed from the combination of sulphur with oxygen to the point of saturation. It is obtained by the combustion of sulphur.

This acid is highly corrosive and possesses all the general acid properties in an eminent degree.

When sufficiently diluted, this acid is an excellent tonic, and its astringency is considered as superior to that of any other acid. It is, therefore, used in spitting of blood, immoderate menses, diabetes, hectic fever, night sweats, and dyspepsia. From its refrigerant and antiseptic properties, it is a valuable medicine in many febrile diseases, especially in those called putrid. Checking fermentation, exciting appetite, promoting digestion, and quenching thirst, it is exhibited with success in acidity, weakness, and relaxation of the stomach.

For administration it is diluted with water, forming what is called *elixir of vitriol*. The best mode of prescribing it is to mix the quantity of acid to be used, with as much water as will render it palatable, to which some syrup or mucilage may be added. To prevent it from attacking the teeth, it may be conveniently sucked through a quill, and the mouth should be carefully washed after each dose. It may be used as a gargle in sore throats.

SPIRITS, OR OIL OF TURPENTINE.

Venice turpentine derives all its virtues from its essential oil, and it is in this oil that it is generally used in medicine. It is a powerful stimulant directed more particularly in its action to the urinary passages. It has been employed in gleet, and in chronic rheumatism, especially in that form of it termed sciatica and lumbago, in a dose of from five to twelve drops, gradually increased, mixed with a quantity of honey, by which its purgency is covered. It is apt, however, to induce violent symptoms. Externally it is applied as a stimulant to parts affected with cramp or rheumatism. Oil of turpentine, taken internally, has frequently succeeded in destroying the tape worm. It has of late been successfully applied to scalds, and by it the pain has frequently been removed in an hour, and the formation of blisters prevented. The turpentine itself is sometimes used internally for the same purpose as its oil.

TAR.

Tar is a thick, black, unctuous matter, extracted from the wood of the pine, by combustion in a close smothered heat. By long boiling, tar is deprived of its volatile parts, and converted into pitch. Tar is a mixture of resin, empyreumatic oil, charcoal and vinegar. It was formerly in great repute as a medicine, both in its original state and also in infusion with water.

It has been recommended in cold and phlegmatic habits; as it not only raises the pulse and accelerates circulation, but at the same time, exhilarates the animal spirits. Great benefit has been derived from it as a fumigation and in a decoction, in some stages of consumption. At present, however, tar water is seldom employed, though its external application proves it to be an excellent remedy for the stings of wasps and bees.

Tar is applied in the form of an ointment to scald head, and some other cutaneous diseases.

The common turpentine, obtained from the same tree, is rarely given internally; its principal use is in plasters and ointments, and for the distillation of essential oil.

VINEGAR. Acetous acid.

Vinegar was known many ages before the discovery of any other acid, those only excepted which exist ready formed in vegetables. It is mentioned by Moses, and indeed seems to have been in common use among the Israelites and other Eastern Nations at a very early period. This agreeable and pungent acid is the product of the fermentation of sweet vegetable juice. It is obtained from wine, cider, beer, the juice of the sugar maple, and other fermented liquors, which are the products of the first stage of the fermentative process. The acetous fermentation is nothing more than the acidification or oxygenation of wine, produced in the open air by the absorption of oxygen. That prepared from white wine is most free from impurities. Besides the pure acetous acid, diluted with much water, vinegar contains tar-

tarous acid, tartrate of potash, mucilaginous matter, and sometimes phosphoric acid.

Vinegar possesses strong antiseptic powers, and its action on the living body is gently stimulant and astringent. It is employed as a useful addition to the patient's drink in putrid and inflammatory fevers. In ardent, bilious fevers, pestilential and other malignant distempers, it is recommended by Boerhaave as one of the most certain sudorifics. In the form of clyster it is used in the same diseases, and in obstinate constipation. Fainting, vomiting, hysterical and hypochondriac complaints, have been frequently relieved by vinegar applied to the mouth and nose, or received into the stomach. It is highly serviceable in obviating the effects of poisonous substances of the vegetable kind, when taken into the stomach, as well as in promoting their discharge by the different emunctories, when received into the blood. When fully saturated with common salt, it has been resorted to as a valuable remedy in dysentery and malignant sore throat; one table spoonful of this mixture, with one or two of hot water, gradually swallowed and frequently repeated, will seldom fail to induce a diaphoresis, and procure essential relief from the most distressing symptoms attending these dangerous diseases.

The same saturated mixture may also be applied to local inflammations with the happiest effects. Vinegar is applied externally in fomentations and baths as a stimulant and discutient; and its vapor is inhaled in putrid sore throat; and diffused through the chambers of the sick to correct the putrescency of the atmosphere.

ZINC.

From zinc several preparations are formed; under which the medicinal virtues of this article are described.

Sulphate of Zinc.—White vitriol.—This substance is produced by the oxygenization of zinc with sulphuric acid.

Sulphate of zinc, in doses of from ten grains to half a drachm, operates almost instantly as an emetic, and is at the same time perfectly safe. It is, therefore, given when immediate vomiting is required, as where poison has been swallowed. It has been given in small doses as a tonic, but I should not advise it. Externally this medicine is used as a styptic application to stop hæmorrhage, diminish increased discharges, as gonorrhœa; and to cure the external inflammation arising from debility and relaxation of the blood vessels, as in some cases of weak eyes.

CASTILE, OR SPANISH SOAP.

Soap is a composition of fixed alkaline salt, in a state of combination with animal or vegetable oil; it is sometimes dry and hard; at others, soft and liquid; being manufactured various ways, with and without heat.

The only difference in the various kinds of manufactured soap, is in the oils employed in the composition. Thus the common hard soap is prepared from caustic ley, with the addition of tallow. The Venice, Castile, or Spanish soap, with olive oil. The perfumed compounds known under the names of palm, violet, almonds, or other soaps are prepared in a similar manner: the oils of such vegetable substances being employed instead of those of the usual kind.

The only species which is in common medicinal use, is that composed of olive oil and soda. It is only prepared in the countries which produce the oil. For medicinal purposes, the Castile, or Spanish is preferred.

The detergent properties of soap, or the power it possesses of rendering oily or resinous substances capable of being mingled with water, has given rise to very erroneous notions of its medicinal virtues. It was supposed to

render such substances more readily soluble in the juice of the stomach, and in the fluids of the body, and to be well fitted for dissolving such oily and unctuous matters as it may meet with in the body, attenuating acid juices, opening obstructions of the viscera, and cleansing all the vessels it passes through.

It has likewise been supposed to possess a powerful solvent power over the urinary calculus; and a solution of soap in lime-water, has been considered one of the strongest dissolvents that can be taken with safety into the stomach; for the virtue of this composition has been thought considerably greater than the aggregate of dissolving powers of the soap and lime-water when unmixed.

How erroneous these ideas are, appears evident when we recollect the very easy decomposition of soap, which renders it perfectly impossible that it should enter into the circulating system, or, indeed, come in contact even with the fluids of the mouth without being decomposed. As to the solution of soap in lime-water, we may observe, that it is a clumsy way of exhibiting soda; for the soap is decomposed, an insoluble soap of lime is formed, and the soda remains in solution. The internal use of soap should, therefore, be confined, in our opinion, to the giving form to other substances which are not decomposed by it, and to decompose metallic poisons when they have been taken into the stomach. For this last purpose, a tea-cupful of solution of soap in four times its weight of water, may be drank every three or four minutes, until a sufficient quantity be taken.

Applied externally it is a very powerful detergent, and combines the stimulating properties of the alkali with the lubricating nature of the oil. In this way it often proves a powerful discutient, and an useful application to sprains and bruises.

TABLE
OF
WEIGHTS AND MEASURES,
USED IN WEIGHING MEDICINES, &c.

There are two kinds of weights received in common use, by one of which gold and silver, and by the other, nearly all kinds of merchandize are estimated. In medicine, the former (Troy weight) is adopted, by which the pound is divided as follows:

<div style="display: inline-block; vertical-align: middle;"> The Pound, lb Ounce, Drachm, Scruple, </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em; margin: 0 10px;">}</div>	contains	<div style="display: inline-block; vertical-align: middle;"> Twelve ounces. ℥ Eight Drachms. ℥ Three scruples. ℥ Twenty grains. gr. </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em; margin: 0 10px;">{</div>
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The signs are added by which the several weights are denoted.

To express the quantity of liquids, measures are employed which are derived from the wine gallon, and for medical purposes, it is divided in the following manner:

<div style="display: inline-block; vertical-align: middle;"> The gallon, The pint, The fluidounces, The fluidrachm, </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em; margin: 0 10px;">}</div>	contains	<div style="display: inline-block; vertical-align: middle;"> Eight pints. pt. Sixteen fluidounces. f℥ Eight fluidrachm. f℥ Sixteen minims. m </div> <div style="display: inline-block; vertical-align: middle; font-size: 3em; margin: 0 10px;">{</div>
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Acid, alkaline, earthy, and metallic preparations, and salts of all kinds, should be kept in glass stopped bottles.

The degree of heat is measured by Fahrenheit's thermometer, and when a boiling heat is prescribed, it is that which is marked by the 212th degree. A gentle heat is between the nineteenth and hundredth.

MEDICAL PRESCRIPTIONS.

The principal objects designed to be attained by the composition of medicines, are to communicate an agreeable taste and flavor; to give a convenient form; to correct the operation of the principal medicine, or obviate some unpleasant symptom it is liable to produce; to promote its action, by

the additional article exerting one of a similar kind; to obtain the joint operation of two remedies, having different powers; or to alter their usual effects by the power which the one may have of modifying the action of the other.

The following are the principal circumstances to be attended to in forming a prescription.

1st. Simplicity should be attained, as far as consistent with the object of the prescription. Nothing ought to enter into the composition which does not add to its virtue, render it less ungrateful, give it a convenient form, or what is not necessary to conceal any particular ingredient; and in general, the practice of accumulating a number of articles in one prescription is to be avoided.

2dly. Substances, it is evident, ought not to be mixed together, which are capable of entering into chemical combination, or of decomposing each other, unless it be with the view of obtaining the product of the combination, or decomposition, as a remedy.

3dly. Those mixtures are also to be avoided, in which one medicine by its peculiar action on the stomach, modifies and changes the action usually exerted by another, unless where the object is to attain the effects of that modified operation.

4thly. The error of contra-indication is to be guarded against, or those medicines ought not to be combined, the virtues of which are not merely different, but are in some measure opposed to each other.

5thly. The ingredients which are to be mixed must be such as will mix properly together, so that the form in which the remedy is designed to be exhibited, may be easily obtained and preserved.

Lastly. The form under which a medicine is prescribed, must be adapted to certain circumstances; principally to the nature of the disease, the nature of the remedy itself, and as far as may be possible, to the taste of the patient.

The doses of medicine are not reducible to any general rules, from their general similarity of operation, or any other circumstance. The principal circumstances by which they are influenced are age, sex, temperament, idiosyncrasy, habit, and disease.

AGE.—From infancy to manhood, a larger dose of any medicine is requisite to produce its effect in proportion to the advance in life. From manhood to old age there is a similar gradation with regard to diminution of dose, though in much less proportion than that which regulates the increase. The following table has been supposed to show these proportions:

TABLE.

Let the dose for a person of middle age be	. . .	$\frac{1}{2}$ or 1 drachm.
For one from 14 to 21 years it will be	. . .	$\frac{2}{3}$ or 2 scruples.
“ from 7 to 14	. . .	$\frac{1}{4}$ or $\frac{1}{2}$ a drachm.
“ from 4 to 7	. . .	$\frac{1}{8}$ or 1 scruple.
“ of 4 years of age	. . .	$\frac{1}{4}$ or 15 grains.
“ of 3 years of age	. . .	$\frac{1}{8}$ or $\frac{1}{2}$ a scruple.
“ of 2 years of age	. . .	$\frac{1}{4}$ or 8 grains.
“ of 1 year of age	. . .	1-12 or 5 grains.
“ of 7 weeks old	. . .	1-15 or 4 grains.

SEX.—Women, in general, require smaller doses of any medicine than men, a difference probably owing to their greater sensibility, from their habits of life.

TEMPERAMENT.—Those of the sanguine temperament are supposed to be more easily affected by medicine, and, therefore, to require smaller doses.

than those of the phlegmatic or melancholic; but in what has been said on the subject, there is so much uncertainty that little reliance can be placed on it.

IDIOSYNCRASY.—This denotes that disposition in individuals to be affected by certain causes, in a manner different from the generality of mankind. Such peculiarities are observed with regard to medicines, as well as to other agents; and where they are known, require to be attended to by the practitioner.

HABIT.—This has an important influence on the operations of medicines. In general they lose some of their poison by having been long continued. This is particularly the case with all strong stimulants and narcotics, and is observable to a certain extent in some of the other classes of the *Materia Medica*.

DISEASE.—This has an influence on the doses of medicines not less important: the susceptibility to external impressions, and to action, being much varied in morbid affections, and the operations of remedies, of course, being modified by such variations. The state of susceptibility being in general apparent, when it varies much from the healthy standard, the doses of the medicines administered, are easily regulated.

PART V.

S U R G E R Y .

BLEEDING.

No operation of surgery is so frequently performed as bleeding; it ought therefore to be very generally understood. It is an operation of great importance, and must, when seasonably and properly performed, be of singular service to those in distress. Bleeding in the asthma, apoplexy, epilepsy, inflammation or pressure of blood upon the brain; and after falls, blows, bruises or any violent hurt, received either externally or internally, is generally necessary. It is likewise necessary for persons who have had the misfortune to be strangled, suffocated or drowned. In a word, whenever the vital motions have been suddenly stopped, from any cause whatever, except in swoonings, occasioned by weakness or hysteric affections, it is proper to open a vein. But in all disorders proceeding from relaxation of the solids, and an impoverished state of the blood, as dropsies, &c., bleeding is very improper.

Bleeding for topical inflammation ought always to be performed as near the part affected as possible. When this can be done with a lancet, it is to be preferred to any other method; but when a vein cannot be found, recourse must be had to leeches or cupping.

The quantity of blood to be taken away must always be regulated by the strength, age, constitution, manner of life, and other circumstances relating to the patient.

The mode of bleeding most commonly practised, is that of opening a vein; and it may be done in the arm, ankle, jugular vein, and under the tongue, and on the back of the hand. In whatever part it is performed, a bandage must be applied between that part and the heart. As it is often necessary in order to raise the veins to make the bandage pretty tight, it will be proper in such cases, as soon as the blood begins to flow, to slacken it a little. The bandage ought to be applied at least an inch or an inch and a half from the place where the puncture is intended to be made. Thus the return of the blood through the vein is stopped, the vein swells, becomes conspicuous, and when opened, bleeds much more freely than would otherwise happen.

Unskilful persons ought never to bleed with the lancet in a vein that lies over an artery or tendon, if they can avoid it. The former may easily be known from its pulsations or beatings, and the latter from its feeling hard or tight under the finger.

All the apparatus essential for blood-letting on the part of the patient, is a bandage, two or more small pieces of linen for compresses, a basin to receive the blood, and a little clean water and a towel. The bandage ought to be about a yard in length, and near two inches broad, a common riband or gar-

ter being frequently employed. The compresses are made by doubling a bit of linen about two inches square. On the part of the surgeon, it is necessary for him to have a good lancet of proper shape, for if the shoulders of the lancet be too broad, it will not readily enter the vein, and when it does enter, it invariably makes a large opening which is not always desirable. If the lancet be too spear-pointed, an incautious operator would often run the risk of transfixing the vein and wounding the artery beneath. More, however depends on the mode of introducing the lancet than on its shape.

During the operation of bleeding, the patient may lay down or stand up, as circumstances may require. A sitting posture, however, is to be preferred, as the most convenient both for the surgeon and the patient.

At the bend of the arm there are several veins in which a puncture may be made. The largest and most conspicuous is that in which the operation is mostly performed; but, it should not be forgotten, that it is immediately under this that an artery runs, which, without great care, might be easily transfixed.

The vein being made choice of, the surgeon, if he use his right hand in the operation, must take a firm hold of the patient's arm with his left, and with the thumb or finger of the same hand he must now press upon the vein just above where he intends the incision, so as to confine and prevent its rolling. The operator must now take the lancet between the thumb and finger of his right hand, with half the blade uncovered, and rest his hand upon the remaining fingers. He will now push the point of the instrument freely through the skin and teguments into the vein, then carry it forward in an oblique direction till the orifice is of a proper size; taking care to keep the point of the lancet, in as straight a direction as possible, to prevent its injuring the parts below. The instrument may now be withdrawn, the thumb removed, and the vein allowed to empty itself.

The entry of the lancet into the vein may be readily known by the resistance to its progress being diminished.

In fat subjects, the large veins at the bend of the arm are sometimes totally imperceptible, notwithstanding the filet is tightly applied. Under these circumstances it may be well for the surgeon to content himself with opening one of the veins of the back of the hand, after putting it for some time in warm water, and applying a ligature around the wrist.

One of the most common ill consequences of bleeding in the arm is a small tumor round the orifice, and occasioned by the blood insinuating itself into the adjoining cellular substance, at the time this fluid is escaping from the vein. Changing the posture of the arm will frequently hinder the tumor from increasing in size, so as to obstruct the evacuation of blood. The best applications for promoting the absorption of these tumors, are those containing spirits, vinegars, &c. Compresses wetted with any lotion of this sort, may be advantageously put on the swelling and confined there with slack bandage.

Typical blood-letting.—This is performed either by means of a scarificator and cupping-glass, or leeches, or by dividing the visibly distended vessels with a lancet. This species of blood-letting is used when, either from the severity of local inflammation, or any other cause, we wish to take blood directly from the vessels of the part affected.

In applying leeches, the most effectual way to make them fix, is to allow them to creep a few minutes upon a dry cloth or dry board; then apply them to the spot and confine them with a small wine glass; or moisten the part with milk, cream, or blood. As soon as the leeches have come away, to promote the discharge of blood the parts may be wet with cloths dipped in warm water.

WOUNDS.

No part of surgery has been more mistaken than the treatment of wounds. External applications contribute very little towards the cure of a wound, in any other way than by keeping the parts soft, clean, preventing inflammation, and defending them from the external air. It is nature alone that cures wounds. All that art can do is to remove obstacles, and put the parts in such a condition as is most favorable to nature's efforts.

With this simple view we shall consider the treatment of wounds, and endeavor to point out such steps as ought to be taken to facilitate their cure.

The first thing to be done when a person has received a wound, is to examine whether any foreign body be lodged in it, as wood, stone, iron, lead, glass, dirt, bits of cloth, &c. These, if possible, and it can be conveniently done, ought to be extracted, and the wound cleaned before any dressings be applied. When that cannot be effected with safety on account of the patient's weakness or loss of blood, they must be suffered to remain in the wound, and afterwards extracted when he is more able to bear it.

In incised wounds, the divided parts should be brought together as exactly opposite to each other as possible; for parts recently divided will unite together, if kept in contact for a sufficient length of time. To retain them in contact, bandages, adhesive plasters, or the needle and thread are necessary. Bandages, or adhesive plasters, may be used when the wounds are superficial; but in all wounds that penetrate to any depth, and when their edges can be drawn into contact, sutures or ligatures are necessary, to support the parts with certainty. We should also support the parts as much as possible by the posture of the patient.

Inflammation, to a certain degree, in incised wounds, is necessary to produce an adhesion of the sides; yet an excess of inflammation is productive of much harm. In open wounds the most effectual relief for this excess of inflammation, are poultices, as of carrots, onions, bread and milk. In closed wounds, my anodyne wash may be used to great advantage. But if, notwithstanding our endeavors, the pain and inflammation increase, the plasters and ligatures must be removed, and the cure attempted in the common way.

Generally, however, the cure goes on without any interruption of this kind; and as soon as a firm degree of adhesion has taken place between the edges of the wound, we may remove the ligatures, or other means of retention. In this method of cure, the dressings should be seldom removed, unless it should appear necessary.

In those wounds which do not admit of this mode of treatment, when the edges cannot be drawn together, after the flow of blood is stopped, and extraneous bodies removed, we find by experience that the most effectual assistance we can render, is, to promote the formation of matter; for in wounds of this kind, a free suppuration proves the most effectual relief to every symptom. The healing process never begins in a sore of the kind till it is covered with good pus. Nature alone performs the cure in such cases, and all we can do is to remove obstructions to her operations, and protect the injured parts till the cicatrix becomes sufficiently firm.

As a general rule in regard to dressing sores, it should always be done whenever they are plentifully covered with matter. When the cure of a wound goes on favorably, the same kind of dressing should be continued as the first. Nothing proves more hurtful to sores than exposure to the air; the dressings, therefore, should be changed as seldom as is consistent with cleanliness, and likewise quickly done. Another general rule may also be laid down—as long as the cure continues to advance, mild dressings should be used; but when the sore assumes any fungous or morbid appearance, more powerful dressings, as the green salve, become necessary, to restore it to a good condition.

In some cases, from a diseased condition of the fluids, wounds may be very difficult of cure by external means; we should then use internal cleansing medicines.

Lacerated and contused wounds—Differ from simply incised wounds in being more hazardous. When the texture of the parts is much destroyed, there is great danger of mortification or gangrene ensuing. In sound constitutions this will not often prove fatal, for in such circumstances the mortified parts soon fall off, and a cure is accomplished in the common way. But in wounds of considerable extent, if the habit of body is not perfectly good, the gangrene which ensues is always hazardous. Again, in severe wounds of this kind, the inflammation often takes hold with such severity as terminates in mortification; this is always dangerous. We should, therefore, in our treatment guard against these two terminations particularly.

If a moderate discharge of blood shall have taken place from the wound, it is no disadvantage. It tends to prevent the inflammatory symptoms from running high. In dressing, the parts should be placed as much as possible in their natural position. Warm poultices and fomentation should be used in order to promote the formation of pus, as that event relieves all the symptoms. If mortification threatens, the proper means to prevent it, as charcoal and yeast, &c., and such other means as the judgment of the practitioner shall direct.

AFFECTIONS OF THE BRAIN FROM EXTERNAL VIOLENCE.

1st. *Compression*.—The most remarkable symptoms indicating a compressed state of the brain, are: giddiness, dimness of sight, stupefaction, loss of voluntary motion, vomiting, stertorous breathing, dilatation of the pupils, involuntary evacuations, oppressed and irregular pulse, and when the violence has been considerable, a discharge of blood from the nose, eyes, and ears.

Some of the milder of these symptoms, as vertigo, stupefaction, and temporary loss of sense are frequently induced by slight blows, producing a shock or concussion of the brain; in which case the symptoms generally soon disappear.

Compressions of the cavity of the skull may happen in several ways; by fractures, attended with depression of the bones; by the effusion of blood, serum, pus, or any other matter; and likewise by the thickening of the bones of the head, as sometimes happens in the venereal disease.

Fractures of the skull are either attended with depression, or not; in the latter case they are of little comparative consequence. When the symptoms of compression are present, it becomes the surgeon's duty, first, to discover as exactly as possible the site of the fracture; and secondly, to relieve the pressure by elevating or removing the depressed parts of the bone.

We may generally discern the seat of the fracture by pressing upon the head, and wherever it excites the greatest pain we may conclude that there is the point we wish to find. We should then examine the state of the cranium, by making an incision with a scalpel through all the external coverings of the skull, and laying the bone bare. This should be done with caution, otherwise the brain may be hurt; and as the intention of this operation is to bring the injured parts into view, the incision should be made sufficient to effect this object.

The exact situation of the depressed parts of the bone next requires attention. In some cases we find it entirely separated from the rest of the skull; in others, it adheres at two points; while in some a fissure is discovered, with one side of the bone beat below the level of the other.

When a portion of the skull is broken into several pieces, it may be well

generally to remove them, as they would never probably unite. In such cases the broken and detached portions of bone may for the most part be easily taken out with common forceps. But when only one piece of bone is depressed, and this adheres on one or more sides to the contiguous bones, we may attempt to replace it. This may be done in some cases with a lever introduced into the sides of the fissure. The manner of elevating the bone, however, must be decided by the judgment of the surgeon, on examination of the case.

But it sometimes happens, even when several portions of the bone are beat in, and very commonly when the depression is formed either of one piece entirely separated, or of a portion of the skull forced in upon the brain, without any of it being altogether detached, that the depressed pieces cannot be either removed or raised to a level with the rest of the skull in any other manner than by making one or more perforations in the contiguous sound bone, for the purpose of introducing an instrument, or lever, in order to elevate the depression. It is for this purpose that the trephine is employed: hence it is evident that the operation can never be necessary when the depressed pieces can be removed in the manner I have mentioned.

The operation of trephining may be performed more safely and advantageously in some parts than in others, on account of unevenness or projections on the inside of the skull, or arteries of the inner membrane. The parts we should avoid, if possible, are the under part of the side bones; the under part of the occipital or hinder bone of the head; the lower part of the frontal bone; and the whole course of the longitudinal sinuses, on the top of the head.

The instruments in common use for this operation are: a scalpel, or a raspatory, for the removal of the bone membrane; a perforator; a trephine; forceps; and an elevator.

In proceeding to the operation, the patient should be laid upon a table of a convenient height, with his head firmly secured by assistants: this being done, a sufficient portion of the skull should be laid bare to admit of the perforation, and no more; and this should be done exactly at the point where the greatest resistance seems to be to the elevation of the depressed piece of bone. We may also include in the trephine a small portion of the fracture or fissure, taking care, however, that the broken part be not depressed. [The point of the centre-pin must be pushed out and set on firm bone, as near as possible to the depressed bone, and then begin to turn the trephine until a groove is cut sufficiently deep to restrain it, when the pin should be removed.] The surgeon should now proceed to finish the operation, by pressing on the instrument with moderate and equal firmness; at the same time using great caution that it does not pass through too suddenly upon the brain, or from the unevenness of the skull, that we do not injure the brain on any side. For this purpose the instrument should be frequently taken out and the depth of the cut examined with a probe or sharp-pointed quill; and at the same time the cut should be cleared of the particles of bone and blood, and the instrument cleaned.

When the instrument has reached the soft substance between the two tables of the skull the frequent cleansing of the saw becomes more necessary, as the blood and spongy bone considerably obstruct the operation. After the diploe, or soft layer, is passed, caution becomes much more necessary; and in proportion to the progress of the saw it should more frequently be removed and examinations be made. As soon as the probe can pass through at any part of the cut, the pressure should be removed from the point. By proceeding in this cautious manner, the bone soon becomes loose in different points, and may be easily removed with the forceps or the points of the two levers applied under it. After the piece of bone is removed, if any splinters or points are found to remain, they may be taken out with forceps.

The depressed bone may now be elevated to its former position, and an elevator or lever applied under it; or it may be entirely removed with the forceps, according as its connexion with the surrounding bones is more or less broken. If, however, in consequence of its being still wedged in at another point, it cannot be removed, the trephine must be again applied and another perforation made, before any considerable attempt is made to remove it.

As the great object of the operation is to remove every cause of compression upon the brain, we should be particularly careful that this is as perfect as we can make it before we desist. At the same time, the removal of any blood or serum from the surface of the inner membrane, is equally necessary. These being done, the wound should be immediately dressed and the patient laid to rest.

In regard to dressings: they should be of the mildest kind, and as loosely applied as possible. Dry lint is commonly employed; but it excites less irritation and is more easily removed when thinly spread with a simple liniment of wax and oil; and no detriment ensues, as some have imagined, from the application of unctuous substances to the brain. No tent or dossil should be inserted into the perforation; all that is necessary is to apply as lightly as possible a lock of soft lint, spread with an ointment, as above mentioned; and this being covered with a thin cushion of soft tow, the whole should be retained with a common night cap, brought to a proper tightness. This supports the dressings with sufficient firmness, and neither keeps the head too tight, nor prevents a free flow of matter from the sore.

When the symptoms under which the patient has labored have arisen entirely from a depressed portion of the bone, and when this depression has been completely removed, we commonly find that immediate relief is derived from the operation. The torpidity, laborious breathing, &c., go off gradually: he begins to toss about in bed, raises his eyelids, and makes some feeble attempts to speak. But if these favorable circumstances do not appear immediately after the operation, we are not to despair of success; for when the brain has been long compressed, it does not always recover its functions immediately. Besides, it often happens that the brain has received a violent shock or concussion, in which case the symptoms do not depend entirely on the compression. Two causes, viz: inflammation of the membranes of the brain, and concussion of the brain itself, may yet interfere and render the cure more doubtful than ever. A surgeon ought not, therefore, to imagine that all his business is over when the operation is finished.

If, after all the evident causes of compression are removed, the pulse is slow and soft, if the patient remains torpid, and especially if the pupils do not contract on exposure to light, there is much cause to suspect that a concussion of the substance of the brain has taken place. But when, instead of these symptoms, there is some return of sensibility, as is indicated by the patient's becoming unmanageable and moving from one part of the bed to another; if the pulse become full, firm, and quick; if the eyes appear inflamed, and the pupils contract strongly in the light, we may suspect that inflammation of the membranes of the brain has taken place. These membranes are susceptible of inflammation to a remarkable degree; and when it is once induced it extends over the whole of them with rapidity; a circumstance that easily accounts for the high degree of inflammation which is often observed in the eyes, and the severe degree of pain which exposure to much light in this situation never fails to produce.

When inflammation is found to have taken place, blood-letting becomes requisite, together with blisters, smart purgatives, mild sudorifics, and low diet. But when the symptoms appear to arise from concussion, the only evacuation that should be advised is gentle purging, for in this case, blood-letting certainly does harm. In both situations, the patient should be kept perfectly

quiet, excluded from the light, and his food of the mildest kind, together with diluent drinks.

In the mean time, the state of the wound requires particular attention; for after the operation the membranes of the brain are liable to inflame and become gangrenous. Nothing so certainly prevents this as a free suppuration upon the injured parts. With this view, warm emollient poultices and fomentations should be applied over the dressings, and renewed every two or three hours, which soon promote a plentiful flow of matter from the perforations of the skull, remove the tension and render the symptoms less violent.

At every dressing, the matter resting in the perforations should be removed with a piece of soft sponge or lint, and then the sore speedily covered with a pledget of any mild ointment.

When the cure goes on properly granulations soon appear upon the dura mater, or lining of the inside of the skull, as well as on the rest of the wound; and these continuing to advance, the different openings made by the trephine are at last completely filled up, and the whole being brought to a level with the rest of the integuments, a cicatrix may be formed.

These granulations, however, instead of merely filling up the vacancy, in some cases push out beyond the surface so as to form pendulous tumors. But in general, these tumors begin to diminish as soon as the soft granulations in the perforations of the skull begin to acquire a firm consistence; and when the ossifying process is completed, they are in a manner cut off, and fall of their own accord.

Compression of the Brain from Extravasation.—By whatever cause the brain may be compressed, the symptoms that ensue are nearly the same. I shall only observe, therefore, that all the symptoms arising from a compressed state of the brain, are produced with an equal certainty, and attended with as much hazard, from effusions of blood, serum, or pus, as from the most extensive depressions of the bone; and in general are more to be dreaded; for where the bone is broken or depressed, the point of injury is easily known; whereas in mere extravasation the seat of the collection cannot be known with any certainty.

In compression of the brain from extravasation, we have the same object in view, with that which a depressed portion of the skull renders necessary; having endeavored to ascertain the seat of the injury, we are to make one or more perforations, in order to discharge the extravasated fluid. The chance of benefit from an operation in this case will not, indeed, be great; but as it is the only chance of saving life, in severe cases, we are certainly justifiable in the attempt.

After the skull is perforated the effusion may be found to be below the dura mater, or even within the second membrane, and in contact with the brain. This may be known by its being of a dark or livid color, very tense, and elastic. This collection, when found, ought certainly to be discharged, as, unless this is done, the intention of the operation is not fulfilled, although the chance of success is diminished. The safest mode of opening the dura mater, is to scratch a small hole by repeated strokes of the lancet. If the matter is then found to be below the inner membrane, that must be opened too in the same manner, till the matter is discharged; for unless we go this length, we in fact do nothing; although we must be aware that we do it at the risk of protrusion of the brain and fatal hæmorrhage.

Fissures, or Simple Fractures of the Skull.—Injuries done to the head are hazardous only in proportion as they affect the brain; so that when the skull is merely cracked, without violence to the brain, it cannot be considered dangerous. Fissures commonly heal without any bad symptoms taking place; but they may prove dangerous, either from producing effusions of blood, or by exciting inflammation in the membranes. In either of these cases the surgeon, from what has been before mentioned, will be enabled to guide his practice.

Conclusion.—The importance of this subject, and the length to which this treatise has extended, would render it proper, perhaps, to avoid perplexity, to bring the material points into one view. I have, therefore, subjoined the following recapitulation :

We are to recollect in the first place that, in a state of health, the cavity formed by the bones of the skull is completely filled by the brain and membranes; that a direct communication takes place between the external coverings of the skull and the parts contained within it, by means of blood vessels passing through the skull at the different sutures: From which we may perceive how the smallest diminution in the cavity of the skull, however it is produced, must always occasion compression of the brain; and also we may account for the ready communication of the inflammation from the external to the internal membranes of the skull.

The various symptoms arising from injuries done to the head, may be referred to three general effects: compression, concussion, and inflammation of the brain.

In a compressed state of the brain, the safety of the patient depends solely upon the removal of the cause. When a portion of the bone is beaten in, and at the same time so loose as to admit of its being taken out with the fingers of the operator, with common forceps, or with the lever, these only should be employed; but when the depressed portion of the bone is firmly fixed, or when the compression is produced by the effusion of blood, or the formation of pus, a proper application of the trephine alone can afford relief; and we ought not to hesitate in employing it.

In such circumstances the patient is in a very hazardous situation; and perforating the skull with the trephine as frequently as may be necessary, may prove, as it often has done, a very effectual remedy.

We are by no means, however, to imagine, as many have done, that a surgeon has accomplished all that may be proper for him to perform, on the operation being finished. Indeed, little advantage will be derived from it, in general, unless other circumstances are kept in view. As the membranes are always injured more or less, care should be taken to obviate the effects of it. Nothing should be crammed into the perforations made by the trephine, and every irritating application should be avoided. The whole surface of the sore should be lightly covered with soft lint spread with an emollient ointment; and this with a compress of soft linen, should be retained with a common night cap, as the easiest and best bandage that can be applied to the head. The patient should lose blood in proportion to his strength; his bowels should be kept open; his skin should be preserved soft and perspirable; a low diet should be recommended; and he should be kept free from noise and every kind of disturbance.

When symptoms arising from external violence done to the head, depend on concussion or commotion of the brain; as this seems to operate chiefly by inducing debility of the whole system, the common practice of discharging much blood and giving strong purgatives, should be avoided.

Instead of this, a moderate use of wine, as well as other cordials, should be advised, together with a nourishing diet; while blisters and other stimulants, should be applied to the head or neck. In long continued affections proceeding from this cause, such as loss of memory, imbecility, &c., electricity may be safely employed.

In the treatment of injuries done to the head, it should always be kept in view, that inflammation of the membrane of the brain very seldom takes place immediately, but is apt to come on at some distant period from the injury being received; in consequence of which, accidents, which do not at first appear to be of much importance, frequently terminate fatally at last.

When inflammation has taken place, we depend chiefly upon general and local blood-letting, carried as far as the strength of the patient will permit. Strong purgatives should be advised; sudorifics are serviceable; cooling and anodyne applications to the head; and when the patient is restless and distressed with violent pain, opiates frequently prove useful.

When an inflamed state of the brain succeeds to a contused wound of the external integuments, warm emollient poultices are the best applications we can make to the sore. By inducing a discharge of matter from the neighborhood of the inflamed parts, they often prove highly serviceable; and when the skin has not been divided by the contusion, it should be laid open upon the first appearance of a tumor, without expecting or waiting for a complete suppuration.

HARE LIP.

Children are often born with fissures in one of the lips, particularly in the upper lip. This is termed a hare lip, from its resemblance to the lip of a hare.

This fissure or separation is generally confined to the lip itself; but it often extends back along the whole course of the palate and into the throat.

Every degree of the hare lip gives much deformity, and sometimes prevents the child from sucking; it always produces some impediment of speech; and when the division extends along the bones of the palate, the chewing and swallowing is incommoded by the food passing up the nose. When it is in the under lip, the spittle cannot be retained.

For these reasons an early removal of the hare lip should be attempted. In a healthy child, the operation may be performed any time between the third and thirteenth month, which I consider as favorable a period as any.

The intention of the operation in the hare lip is to cut off the sides of the fissure, so as to reduce the whole to the state of a recent wound, and then to draw them together and retain them in contact till they unite. In effecting this, bandages, adhesive plasters, ligatures, &c., are made use of.

In proceeding to the operation, the patient, if an adult, should be seated opposite the light, with his head properly held by an assistant; if a child, he will be more firmly secured if laid on a table, and kept in a proper posture by an assistant on each side.

The upper lip should now be completely separated from the gums beneath, by dividing the frenum that conjoins them. This admits of the lip being more equally stretched. These preparatory steps being adjusted, the surgeon must take one side of the lip between the thumb and fore-finger of his left hand, and having an assistant do the same with the opposite side, stretching it somewhat tightly, he should with a scalpel make an incision from the lower edge of the lip to the upper extremities of the fissure; cutting off all the parts concerned in the fissure, and even a small portion of the contiguous sound parts. The same must be done on the other side, which ought to be of the same length and terminate in the same point with the other. By this means, if the operation is rightly done, a piece will be cut out of the form of the letter Δ inverted.

[I prefer a pair of sharp scissors to the scalpel in the performance of this operation.]

To prevent inflammation, the divided arteries should be allowed to discharge freely; this being done the surgeon should proceed to unite the sides of the fissure. The surgeon is now to see that the two sides of the cut correspond exactly together.

[The surgeon must prepare a needle with a good strong thread, well waxed; he then must pass the needle through the entire lip a little from the edge, taking care when he passes the needle through the other lip that they are directly opposite each other. Two or three ligatures drawn pretty tight are generally sufficient. Then put on one strip of adhesive plaster, which shall reach from one cheek to the other, in such a manner as to relieve the stitches, and, at the same time, bring the cheeks forward.]

A piece of lint should now be applied over the parts to protect them from the air. It may be well also to keep the cheeks pressed up with a bandage, to prevent irritation from the stitches.

It is scarcely necessary to observe that, while the sutures are in the lip, the patient should be fed upon spoon meat, and be prevented from laughing or crying, or stretching his mouth in any manner.

The sutures having remained in the lip six or eight days at the farthest, they should be taken out; as the parts are by that time united, and by remaining longer they are apt to create marks.

What I have hitherto said relates to the disease in its common form. In the case of a double hare lip, the operation requires to be performed twice in all its parts; first in one fissure, and then in the other. This should be done at different periods of time, and never attempted in the one, till the other is safely healed up.

[If the fissures are near each other, they may be made into one by cutting the division; in this way you form a simple, or single hare lip. Sometimes these hare lips extend through the whole upper jaw. These cases are very difficult of cure. I have had no difficulty in accomplishing a perfect cure of hare lip when the deformity has been confined to the soft parts.]

HERNIÆ.

[Hernia is a preternatural tumor, occasioned by the protrusion of some of the viscera from the cavity of the abdomen. In most cases the displaced bowels are inclosed in a bag, or sac, derived from the peritoneum. This peritoneal covering forms the hernial sac.

I shall confine my remarks to two kinds—inguinal and femoral. Inguinal hernia is caused by a weakened and relaxed state of the abdominal muscles, and a preternatural laxity of the general system; by strains, jumping, or any sudden action of the body. In children it is often caused by crying; straining at stool is not an unfrequent cause.

The tumor in inguinal hernia comes down through the ring, or opening, that gives passage to the spermatic cord, and usually makes its appearance just above Poupart's ligament; if it is not checked in its course, it will pass down over this ligament, following the spermatic cord into the scrotum, and frequently enlarges to an enormous extent.

Herniæ appear under three forms, viz.. *reducible, irreducible, and strangulated.*

Reducible herniæ produce no pain, and can be pressed up at any time. The surgeon should endeavor to keep it in its place by means of a bandage or a truss. In order to reduce a hernial sac, you must place your patient on a table or sofa, with the hips a little raised, and the legs bent towards the body: in this way the muscles will be most relaxed. If inguinal you push moderately and steadily with your fingers, backwards and a little to the outside. If femoral, the same position must be observed as in inguinal, but the manipulations are somewhat different. If the tumor is large, you must press a little downwards and backwards, then upwards, backwards, and inwards.

Hernia is divided, according to the contents of the sac, into *enterocele*, when they are composed of a portion of intestine alone; *epiplocele*, if composed of omentum, or call, only; and *entero-epiplocele*, when both intestine and omentum contribute to the formation of the tumor.

A hernial tumor of enterocele character, may be known if, on reducing it, it entirely subsides and you hear at the same time a gurgling sound; or if, previous to the reduction, you place your hand on the tumor and request the patient to cough, the hand is suddenly repelled.

If the case is one of epiplocele, or of omental kind, the tumor will have a more flabby and doughy feel; it is in general perfectly indolent, is more compressible, and is somewhat difficult to reduce.

If the hernia be an entero-epiplocele, that is, one consisting of both intestine and omentum, the tumor may be easily distinguished from every other by the smooth surface of the intestine slipping up quickly, with the gurgling noise, leaving behind the omentum, which is much less easily reduced.

Irreducible Hernia.—Hernia is said to be irreducible when the intestine, in consequence of adhesions, become so fast to its situation that it cannot be removed; or by the enormous bulk of the tumor and the intestines being so long from their natural situation in the abdomen, that there is not room in the cavity of the abdomen for them. If there is no strangulation in old ruptures, they had better be let alone; although I once saw a case of this kind reduced by taking hold of the feet of the patient and shaking him with his head downward.

Strangulated hernia is where the intestines are only involved, and when the protruding parts not only cannot be reduced, but suffer constriction; consequently there is pain, inflammation, tenderness to the touch, vomiting, great expression of countenance, and the parts through which the intestine passes act like a band around it. If the patient is not relieved, a distressing hiccup ensues, which will continue for a short time, when the pain suddenly ceases, the patient feels easy, all the former symptoms are moderated in point of violence, but the tumor will turn livid, delirium takes place, succeeded by starting of the tendons, which shortly terminate in death.

When the surgeon is called to a case of this character, he must proceed as directed in reducible hernia, and in addition he must bleed the patient freely, direct the warm bath, use injections and tobacco poultices, and, in short, use all means to relax the system generally. If there is much fever and inflammation, bleed to syncope, if possible; at this time embrace the favorable opportunity to reduce the hernial tumor.

Before proceeding to describe the operation, it will be necessary to make a few remarks relative to the parts involved, &c. The passage of the intestine in inguinal hernia is through an opening called the inguinal canal; this canal is formed for the passage of the spermatic vessels. These vessels coming from the interior of the abdomen, pass out through the tendons of the abdominal muscles (which divide in order to allow their passage), over Poupart's ligament and take their course to the testicles. When this passage is, from any cause, relaxed, the intestine will almost invariably follow the spermatic cord. The stricture in this kind of hernia is generally situated in the abdominal ring, which ring is formed by the division of the tendons of the abdominal muscles. Sometimes the stricture will be formed by the internal and sometimes by the external muscle. This passage, in a natural state, is about three inches long from its commencement to the external surface of the muscle. I shall leave the more minute description, and proceed at once to the operation for inguinal hernia.

OPERATION.

The patient should be placed on his back, with his legs a little flexed. The surgeon must make a free incision from above the tumor, over it, and

carry it a little below. This must be done in a very cautious manner, slowly and carefully through all the parts until the sac is exposed, which may be known from the intestines, by its being rougher, and frequently a little water will make its exit; when the sac is opened, the intestines will be marked by its blood vessels. The sac is now to be laid open, by first raising it from the intestine with a pair of forceps, then make a small incision and pass in the finger; make the opening with a probe-pointed bistoury in the sac sufficiently large, using the finger as a guide; next examine for the seat of the stricture, and then carry the finger, if possible, under it, and pass the probe bistoury on the insinuated finger, letting it lay flatwise until its end is beyond the stricture, when it should be turned up and caused to cut sufficiently to admit the return of the strangulated intestine into the cavity of the abdomen. Sometimes the incision may be made a little above and then a little below the tumor. If the finger cannot be introduced the directory may be employed. If there are no adhesions formed between the contents of the sac and the surrounding parts, an easy reduction of the tumor may be made. If the intestine is mortified and in a sloughing state, it should be drawn out until the healthy portion of the intestine is exposed, and the end which is towards the stomach finally allowed to unite with the walls of the abdomen, and in that way form an artificial anus: this is the only alternative to save the patient's life, however disagreeable it may be.

There are several important blood vessels about the inguinal canal, and it requires care on the part of the surgeon, to avoid cutting them. After the operation is finished, and the tumor reduced, the wound must be brought together by sutures, a compress applied, and the whole secured by bandages. The patient must be confined to his bed and lie upon his back for several days, observing an antiphlogistic diet and regimen.

This kind of hernia does not occur as often in females as it does in males, for the following reason: the inguinal canal in females is both smaller and shorter than it is in males; in the female it gives passage to the round ligament of the uterus, which terminates on the pubes. When this form of hernia does occur in the female the tumor is generally very small, but the operation for its reduction, is in all respects, the same as that performed in case of its occurrence in the male.

CRURAL, OR FEMORAL HERNIA.

Both sexes are subject to this kind of hernia, but females are more often afflicted with it than males, for the reason that the space through which the intestine passes is longer in the former than in the latter. In femoral hernia, the intestines take the course of the crural vessels from the abdomen, passing under Poupart's ligament, down upon the thigh. The parts surrounding these vessels being very loose will admit considerable portions of intestine to slide down by the side of them. The femoral tumor is small compared to a large inguinal hernial tumor. It is, however, more liable to strangulation, because so small a portion of intestine protrudes that it forms a short knuckle, consequently the circulation of the contents is more easily obstructed in the part involved. The tumor in this species of hernia makes its appearance quite down on the thigh, and the operation is more difficult than that for inguinal hernia, for the reason that a larger incision is necessary and that, too, in the immediate neighborhood of large vessels. I will describe this operation by relating one which I performed myself; this case was published in the *New-York Lancet* of February 12th, 1842, vol. 1, p. 108.

I was called May 6th, 1841, to Brooklyn, to visit a Mr. B., who had irreducible strangulated hernia. The patient was about 41 years of age, of temperate habits, and good constitution. He had been afflicted with hernia about twelve years, but had experienced little inconvenience, as he had been able

to keep it reduced by means of a truss which he was in the habit of wearing, but in consequence of the pad becoming displaced by the patient walking for several hours without intermission, the intestine descended and became strangulated.

When I arrived, the intestine had been strangulated about sixteen hours; all efforts to reduce it had been unavailing; warm fomentations of various kinds had been applied to the tumor without any benefit. The sac was about the size of a goose egg. The patient had been vomiting incessantly for the last four hours, with agonizing pain in the right hypogastric and lumbar regions. The tumor was very tender, the slightest pressure causing severe pain. The necessity of an operation being apparent, I proceeded immediately to its performance, assisted by my late pupil, Amasa A. Macwithey, M. D. I commenced my incision about one inch above Poupart's ligament, carrying it over the central part of the tumor to its base, freely dividing the integuments; then, by dividing the fascia superficialis and cellular membrane, brought the hernial sac into view; it was extensively adhered to the surrounding parts, which I detached principally with my fingers, and then proceeded to divide the cribriform fascia, which formed the stricture of the intestine. On opening the sac it was found to contain a portion of the jejunum, which exhibited a healthy appearance; the vessels, however, were a little injected. After detaching the adhesions the tumor was at once reduced. The hernial tumor rested upon the anterior part of the pubal portions of the fascia lata, being embraced closely on each side by the iliac and pubal columns of the same fascia. I closed the incision with four interrupted sutures, straps of adhesive plaster, lint, light compresses, and applied the figure-of-eight bandage.

The patient bore the operation well, and complained of no pain. I gave him a simple enema, and placed him quietly in bed, with head and shoulders a little elevated and leg semi-flexed. I directed a small dose of magnesia to be given him one hour afterwards. The case progressed without a single unpleasant symptom, and in a fortnight after the operation the patient was able to leave his apartment.

Herniæ may take place in various parts of the abdomen and pelvis; but the above remarks will prove sufficient to direct the surgeon in any necessary operation for herniæ. He must have confidence in himself, and that confidence must be based on a knowledge of the parts that he is to operate upon.

Children are sometimes born with herniæ; when this occurs it is called congenital hernia.

TREATMENT OF HERNIÆ.

The operation for the cure of herniæ, that has been highly recommended, is performed by making a small incision down to the hole where the hernia first makes its appearance. The hernia must be completely reduced and care must be taken that no viscera remains in the opening. Then inject the parts with the tincture of *iodine*, or some other stimulating injection; this produces inflammation in the sides and parts immediately connected, thereby forming adhesions: in this way the hernial opening is closed. The operation has been frequently successful, though I have never performed it myself. I have no doubt, however, of the practicability of the operation.

There are many kinds of *trusses* in common use. Any one may be resorted to that will keep the tumor reduced, and at the same time is comfortable for the patient to wear. Trusses sometimes cure by keeping the tumor up, and sometimes by exciting inflammation.

There have been various attempts made to cure herniæ by taking medicines internally but this has failed to effect the object in every case, so far as my knowledge extends.

I once saw a plaster formed of comfrey and acorns, roasted and pulverised, equal parts, moistened with brandy, and wore constantly under the truss. Two persons have told me that they were cured by the use of this plaster. Alum and white oak bark, used as a plaster under the truss is recommended very highly. This complaint is of sufficient magnitude to induce us to try any thing that offers any signs of cure ; but the great principle is to excite inflammation, for that produces adhesions which, in all probability, will close the rupture.

I think that no definite time can be set for the surgeon to wait before he proceeds to operate for strangulated hernia; but all reasonable exertions should be used and continued until the patient is in danger of losing his life, and a longer delay would only be increasing danger, and the operation would be more likely to fail in consequence of a further delay. Let not prejudice to any operation of this kind overcome your better judgment, at the expense of your patient's life. To perform this operation, says my father, the surgeon must have a steady hand, a good eye, and a perfect knowledge of the anatomy of the parts.]

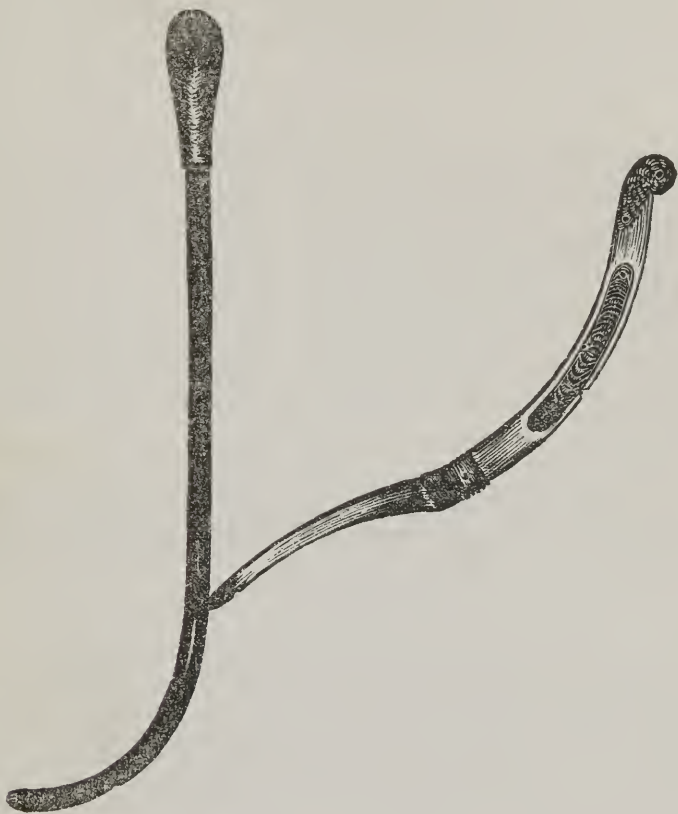
LITHOTOMY.

[There is a variety of operations in lithotomy, but I prefer the lateral operation with the knife, and shall describe that alone.

The patient should be placed on his back, as near the edge of a table as possible, and, if necessary, he may be secured by fastening the hands and feet together, and supported by good assistants. The surgeon will then introduce the grooved staff and feel for the stone. Be sure that there is no mistake about the existence of a calculus in the bladder. It would be well to let others examine, so that there could be no doubt as to its existence, for the best surgeons have been deceived. When the staff is properly adjusted, let a good assistant take charge of and hold it very steady. The surgeon will seat himself directly in front of the nates of the patient, have the scrotum and penis drawn up, take the scalpel in his right hand and make an incision a little to the right of the raphe (and in the adult), nearly two inches above the anus, previously making the parts tight with the thumb and finger of the left hand. Make the incision in an oblique direction as it regards the staff and raphe and extend it down to the groove of the staff. Be careful that the groove is clear so that there will be no danger of the bistoury taking a wrong course. Now insert the end of the bistoury in the groove (see plate), cut down in a line between the ramus of the ischium and anus ; let the knife follow the groove in the staff into the bladder (see engraving of the staff and knife). In this way you will make a free opening, both in the common integuments and in the bladder. When the knife is drawn out, if there is reason to think that the incision is not sufficiently large, the knife may be carried a little farther back, making it cut on withdrawing the blade. Be steady and cautious in every step of the operation. Care must be taken not to wound the rectum, as the incision is often carried beyond the anus.

The incision being made, if the patient is not too fleshy, the operator can easily reach the stone with his finger, and if it is not too large it may easily be extracted by the finger, but if it is very large or the patient very fleshy, the forceps made for the purpose of extracting the stone must be used. The forceps must be closed when introduced and opened when in the bladder, so as not to grasp any of the soft parts. It is sometimes necessary to break the calculus, in consequence of its great size, before it can be extracted. The surgeon should examine, after he has extracted one, to ascertain if there are any more. The bladder should now be well washed out with warm water, injected through the wound.

The following engraving represents the staff in the bladder, and the bistoury in the groove of the staff, just at the point where the first incision is made upon the staff behind the scrotum. The bistoury must be kept in the same situation that it now occupies while making the incision into the bladder.



After the bladder and wound have been properly cleansed, the patient is to be placed quietly in bed, with his knees tied together, and a little lint applied to the external parts of the wound. It will be necessary after a few hours to examine the wound; and if no water comes from the external incision, or if the patient should void it by the urethra, there will be found some obstruction in the wound: should this be the case, undress the parts, and remove whatever obstructs the passage of the urine: blood frequently coagulates and closes up the orifice; in this case it requires to be removed, and if there are any vessels bleeding, they must be taken up and ligatures placed upon them, or a compress of sponge or lint applied to them. The wound should heal by granulations, and the flow of urine through the aperture gradually diminishes. The patient must live light and take no stimulus of any kind, either in the form of food or drink.

After this operation there is always more or less danger of inflammation, and

sometimes of mortification, and it may extend to other contiguous parts ; but with proper treatment, the operation generally terminates well, particularly in young or middle aged patients ; old age is unfavorable. Much, however, depends upon the surgeon being a good operator.

Females are not often troubled with stone in the bladder ; but when this does occur, it can generally be extracted by long forceps, through the urethra, this organ being very dilatible in the female.]

FISTULA IN ANO.

[*Operation.*—The patient should first be laid upon his back, near the edge of a table or bed ; let the knees be bent towards the body ; and if he is uneasy, fasten the right hand and foot together, and the left the same ; extend the knees far asunder ; expose the parts as much as possible, making as much room to operate as you conveniently can. A good light is indispensable.

The surgeon will next ascertain the number and extent of the fistulous openings, and with a probe explore the direction they take. Then introduce the index finger of the left hand into the rectum, and with the other hand pass a small probe-pointed bistoury into the opening until it reaches the finger in the rectum ; now, keeping the finger and bistoury together, withdraw them ; in this way a free opening is made from the fistula outward. Should there be more than one fistula, they should be treated at the same time and in the same manner.

The wound should be dressed with lint from the bottom, and be allowed to heal by granulation.

Keep the patient on his back as much as possible until he gets well, direct light food and keep the bowels free : hard excrements should not be allowed to pass the bowels after the operation ; indeed, you had better give a brisk cathartic before operating. Keeping quiet, in a recumbent position will greatly favor the cure of fistula after the operation.]

GENERAL OBSERVATIONS ON FRACTURES.

A bone is fractured when it is broken or divided by violence. When the integuments surrounding the bone remain sound and uninjured, it is denominated a simple fracture ; when these are torn and lacerated, or the skin is broken, it is a compound fracture, as also when the bone is broken in different parts, and their extremities protruding. Fractures are termed transverse, oblique, or longitudinal, as the bone is broken straight across, in an oblique or slanting direction, or lengthwise.

The existence of a fracture is for the most part easily discovered by manual examination ; except in simple fractures, where only one bone of a limb has suffered, when it is often difficult to judge with precision, particularly when the parts have become tense and painful. In such cases we must judge as correctly as we are able from a view of all the circumstances and symptoms.

In old age bones are more easily fractured than in the earlier periods of life. In infancy bones will rather yield than break, with a moderate force, while in old age they become so brittle, that even the largest are frequently broken by trifling falls or bruises. Diseases often induce this brittle state of the bones ; particularly the venereal disease and the scurvy.

The symptoms that usually accompany a fracture, are, pain, swelling, and tension in the contiguous soft parts : a more or less crooked and distorted state of the limb ; a grating noise on the parts being handled ; and loss of power to a certain degree in the injured part. For the most part, the pain of

a fracture is not very severe; but in some cases it is so violent as to induce the most alarming symptoms; as spasmodic twitchings of the muscles, high inflammation, fever, convulsions, and delirium; which, if not soon relieved, often terminate in mortification and death.

Broken bones unite sooner in children than in old age. When the large bones are broken near their extremities, the danger is greater than when they are broken near their middle; for the shortness of one end makes it more difficult to keep it in place; and the ligaments of the joint are apt to be injured. Besides the ends of bones are soft and spongy, and do not heal so readily. Fractures near the ends of bones are frequently productive of stiff joints, unwieldy limbs, and pains and swellings.

The indications to be answered in the cure of fractures, are simply three; to replace the parts of the bone that have been displaced; to retain them in that position as long as may be necessary; and to obviate such symptoms as may arise during the cure.

In some cases, where the fracture is directly across, they are either not moved, or can easily be replaced; but when broken in an oblique direction, they are apt to pass one another, so as to produce much deformity and pain. The contiguous muscles are thus severely injured, and excited to violent action; hence the malady is increased by every exertion; and nothing will remove it but replacement.

In the reduction of fractures or misplaced bones, the operator should constantly bear in mind, that the limb should be placed in that position which shall give ease and relaxation to the muscles; and when this is done the ends of the bone may generally be replaced with ease. When a limb is completely laid in this posture, the surgeon will in most cases be able to replace the bone without any assistantance. I speak of this more particularly, as, till within a few years, it was the common practice to keep the limb extended, in this manner requiring the strength of two or three men, or of machines, to reduce it. The mischief this would often produce, it is easier to imagine than describe.

As it is of much importance in replacing the parts of a fractured bone, to do it with accuracy, the most minute attention should be given to this part of the operation. Every inequality, from a portion of the misplaced bone, should, as much as possible, be removed, so as to render the injured parts similar to the corresponding sound limb. When the fractured bones are not properly reduced at first, the limb must either remain always distorted, or be put right during a future stage of the cure, when it will necessarily be done with more pain to the patient, and more trouble to the surgeon.

The bones being put right, our next object is to retain them in this situation as long as may be necessary. This we do with splints and bandages, and placing the limb in such a state of relaxation as will admit of resting easy and without disturbance till the cure is completed. The average time in which this can be done under favorable circumstances, and in a middle aged patient, may be nearly as follows: the bones of the leg, or thigh in two months; the bones of the arm, in six weeks; the shoulder-blade, ribs, bones of the fingers and toes, hands and feet, in three weeks. In childhood, these fractures heal more quickly than in old age.

To prevent inflammation and alleviate pain in the injured parts, particularly when they are much bruised, the same means are proper as have been recommended in wounds and bruises in other parts of the body, which it is unnecessary here to particularise.

Sometimes it is difficult to obtain a union between the ends of the fractured bones, and they remain for a long time loose and detached. This may proceed from various causes; from constitutional diseases, as rickets, scurvy, venereal; from the ends of the fractured bones not being kept steadily in contact till united; from a portion of ligament or muscle interposing between:

or from the smallness of the broken bones. In a state of pregnancy, too, the bones do not heal so fast; this seldom takes place till after confinement of the patient. When fractured bones have remained disunited for a long time the broken ends become smooth and hard, when it is useless to replace them; although this has in some cases been successfully remedied by opening the flesh and sawing off the ends of the bones, so as to make a fresh wound; and in other cases, by passing a seton between the ends of the bones, thereby causing inflammation and adhesion.

In compound fractures, where the bone is nearly bare, and there are small pieces of bone entirely detached and loosened, so that the circulation cannot go on in them, they had generally better be removed at once; as they may be considered as extraneous bodies, and only hinder the cure. When a portion of a muscle or ligament has got between ends of the bones, it causes severe and continual pain, and when the limb is moved, twitchings, and shooting pain. To remedy this, we should endeavor to remove it by putting the limb in every variety of posture, in order to disengage it; but if the bones still remain loose, an incision may be necessary.

Besides the causes already mentioned, which may impede a cure, there is another, an effusion of blood around the bone, which is very apt to do harm. Instances sometimes occur of the large blood vessels being cut by sharp fragments of the bone. When the quantity of blood thrown out is considerable, the tumefaction of the limb becomes so great that it is necessary to lay it open in order to secure the injured vessels with a ligature; but when the swelling does not arrive at any alarming height, we rather trust to the powers of nature to contract the arteries and absorb the effused blood.

Having premised these general observations, we shall now briefly consider the fractures of particular bones.

FRACTURES OF THE NOSE.

The arched form of the nose prevents its being so frequently fractured as might otherwise be. Much violence, however, fractures them.

These fractures require particular attention, as injuries may ensue of consequence, as polypii and tedious ulcers; injury of speech and smelling, &c.

All that is necessary to be done in this case is, to replace the bones carefully, and with as much accuracy as possible. When this is done properly, they will for the most part remain in their situation without assistance; and soft dressings will complete the cure.

The same remarks will also apply to the cure of fractures of the bones of the face and jaws; and it is unnecessary here to repeat them, as these fractures are of such endless variety, that the judgment of the surgeon must be his guide.

FRACTURE OF THE CLAVICLE.

This bone is, from their slender structure and position, more liable to be broken than any other bone in the body.

A fracture of the collar bone is in general easily distinguished. On the corresponding arm being moved, a grating noise, called crepitus, is produced in the fracture; the ends of the broken bone readily yields to pressure, and it is pulled apart by the weight of the arm.

[To reduce this fracture there must be a cushion of considerable size fastened in the arm-pit, or axilla, then raise the shoulder upwards and backwards and secure it by passing bandages around the shoulder, arm, and body. Let the elbow be bent and the hand carried in a sling. The use of the pad in the arm-pit is to keep the shoulder out from the body, and the bandages must be so put on as to raise the shoulder and arm.]

When the ends of the fractured part are properly supported, they will generally unite in the course of a fortnight: but the arm should never be used with freedom till the end of the fourth or fifth week.

FRACTURE OF THE RIBS.

Fracture of the ribs may be discovered by the seat of the pain, and by pressure with the fingers. For the most part, the attending symptoms are moderate; the pain inconsiderable, no fever occurs, and the patient soon gets well. But in some instances the pain is severe from the first, the breathing becomes difficult, attended with cough, and perhaps a spitting of blood; and the pulse full, quick, and sometimes oppressed. The breaking of a rib merely cannot produce any of these symptoms; we may, therefore, suppose, in such a case, that the broken rib is pushed inward, by which the pleura and lungs are compressed and lacerated, thereby accounting for these symptoms.

In severe cases of fractured ribs it may be necessary to take a quantity of blood. If any inequality is discovered by one end of the bone having risen above the other, we should endeavor, by moderate and equal pressure, to replace it: and to prevent it from rising a broad belt should be applied tight around the body to retain it. This belt may be lined with cotton, and kept on four or five weeks.

If, instead of the symptoms subsiding, an oppressed breathing is kept up by air escaping from a puncture in the surface of the lungs, or by blood discharged from a ruptured artery into the cavity of the chest; or when the pain is kept up by the fractured rib being forced in upon the pleura; it becomes necessary to make an opening with a scalpel. When a portion of the rib is merely forced inwards, the opening should be made directly upon the injured parts, and on the rib being laid bare, the depressed part should be raised, either with the fingers or forceps. If any air or blood is collected in the cavity of the chest, an opening should be made as early as possible to discharge it.

[I once saw a case of emphysema arising from a wound of the lungs, produced by the end of a fractured rib, in which nearly half of the body was inflated by the admission of air into the cellular tissue. On putting my finger on the extravasated part a crepitus peculiar to this affection, was distinctly heard and felt.]

FRACTURE OF THE STERNUM.

The breast bone is not easily broken by reason of its elasticity. It is sometimes, however, fractured and beaten in upon the pleura. The dangerous symptoms, in the fracture of this bone arise from its being forced into the chest, from the vicinity of the large blood vessels, while the symptoms are nearly the same as those of a broken and protruded rib.

If the depressed rib cannot be raised by a deep inspiration, or other moderate means, an incision should be made of a length sufficient to admit of a free examination of the bone; when the depressed piece may be raised with an elevator.

FRACTURES OF THE SPINE AND PELVIS BONES.

Fractures of the bones of the back are seldom met with except from gun shot wounds.

For the most part they terminate fatally. The spinal marrow is generally so severely shocked and sometimes injured, that it either produces a sudden or a lingering death. We judge of the extent of injury of the spinal marrow by the severity of the pain, and by the parts below the wound becoming paralytic.

We should always attempt a cure, by replacing the bones, taking care that the marrow is not compressed, as in that case, death would be the certain consequence.

When the pelvis bone is broken, if the injury is deeply seated, the patient ought to be placed in the posture in which he finds the most ease, and confined as much as possible till the bones have time to heal. Blood-letting will be useful to prevent inflammation. External fractures should be reduced and treated in the common way.

[I once saw a lady who had a fracture of one of these bones at the junction of the pubis and ischium, or side bone of the pelvis; this was produced by violent labor pains.]

FRACTURE OF THE SCAPULA.

The shoulder-blade is not so liable to be broken as other bones, from its being moveable. Fractures of this bone are discovered by the seat of the pain; by the violence of the injury; by manual examination; and by stiffness and immobility in the corresponding arm.

We should replace the fractured parts with as much exactness as possible; and in doing so, we are much assisted by relaxing the muscles of the injured part. The arm and shoulder should be raised and supported and the broken bone kept quiet. Inflammation from a fracture of this bone, is apt to be very severe.

FRACTURE OF THE HUMERUS.

Fractures of this bone are easily discovered, either by sight or manual examination.

In the reduction of the upper-arm bone, much extension is not required; but that it may be done with ease, the muscles should be relaxed as much as possible; this we do by moderately bending the elbow, while the limb is raised to a nearly horizontal direction. With the arm in this situation, the surgeon will in general be able to replace the bones without any assistance; but if assistance is necessary, an assistant may take hold of each end of the broken bone and extend it sufficiently.

To secure the fractured parts in their situation, a firm splint should be placed on the outside of the arm, and another on the inside, both covered with soft flannel; and while these are secured by one assistant, and the fore-arm supported by another, a roller should be applied over the whole, sufficiently tight to support the ends of the broken bone, without interrupting the circulation. The fore-arm should be supported in a sling, and kept in a hanging position.

When no urgent symptoms take place, such as pain and swelling of the arm, the bandage should not be removed for several days; but about the seventh day, in all fractures, it is proper to remove all the coverings, to see whether the bone is perfectly in its place or not; for at this period any displacement may easily be put right.

[Care must be taken that no soft parts get between the fractured ends of the bone, as the occurrence of this event may prevent a union taking place between the fractured extremities.]

With good success, the bone will usually unite in less than a month, but the arm should not be used in less than six weeks.

FRACTURE OF THE BONES OF THE FORE-ARM.

There are two bones in the fore arm, viz., radius and ulna. They are much exposed to injury, and are, therefore, often broken. When both bones are

broken, it is easily known; but when one only is fractured, especially the radius, the firmness of the outer bone keeps it on the stretch and in its place, and we cannot so easily see the injury. The seat of pain points out the injured parts; and when either of the bones is fractured, a grating noise will be heard if the surgeon grasps the limb firmly above and below this part, and endeavors to move it in different directions.

It is of much importance to distinguish the direction of the fracture, particularly if near the wrist; for upon this our chance of making a perfect cure depends; and also to prevent the stiff and uneasy state of the arm after the bones are united. These inconveniences should be guarded against, as practitioners are apt to be blamed for them.

On the seat of the injury being discovered, if any part is displaced, it ought to be replaced immediately. In doing this, the muscles should be relaxed, by bending the arm at the elbow and wrist; and strength enough exerted to replace it. This being done, splints, covered with flannel, and of a length sufficient to reach from the elbow to the tops of the fingers. [The splints should be narrow, and placed one upon the anterior, the other posterior part of the fore-arm, and as much as possible between the bones, for the purpose of keeping them separated.] The splints are to be secured with a roller so tightly as to prevent the bones from slipping out of their places, but without impeding the circulation or causing pain. In applying the splints, the palm of the hand should be turned toward the chest; this being the most convenient posture in which the arm can hang in a sling. The splints should be long in order to prevent the motion of the fingers, which would tend to keep up inflammation.

The wrist is sometimes partly dislocated along with a fracture of the arm bones. If this is not carefully attended to, a stiff joint and swelling will be the consequence.

FRACTURE OF THE OLECRANON.

[This fracture generally belongs to the transverse order, the upper fragment being drawn up by the action of the muscles. There is difficulty in bending the arm accompanying this fracture.

The fractured end must be brought down and secured with bandages; and a splint applied to the inside of the arm to prevent motion while the bone is uniting.]

FRACTURES OF BONES OF THE WRIST, HANDS, AND FINGERS.

The bones of the wrist are small and moveable, and on that account are seldom fractured, except by shot, or heavy weights.

The difficulty in this case is, when they are replaced, to keep them there. The arm and hand should be well supported by splints, and inflammation prevented, or a stiff joint is the consequence.

If the bones of the hand are broken, after replacement, a firm splint, either of timber or pasteboard, should be applied over the whole palm of the hand and inside of the arm, extending from the ends of the fingers to the joint of the elbow.

The finger bones are frequently broken; but when properly treated, they readily unite, and the fingers become equally useful as before. If a splint is necessary, pasteboard, softened in water and shaped to the fingers, is proper to be applied.

This is a very excellent way to form a splint for many fractures.

FRACTURE OF THE THIGH BONE.

The middle or neck of this bone are the places most frequently broken.

Fractures in the body of the bone are easily discovered by the usual grating noise; if oblique, by the thigh being shortened; or, if transverse, by the ends of the bone being displaced; by much pain, and the limb being unable to sustain weight.

[A fracture of the neck of the femur, in a very fleshy person is often difficult to be distinguished from dislocation; if fracture, however, by drawing the leg down to its proper place and moving in various ways, crepitation (or the grating noise) can generally be felt, and the tumor on the hip is not so large in fracture as in dislocation; and farther, a dislocation is more difficult to reduce than a fracture.

The condyles of the femur may be fractured: this often causes great deformity of the knee: in this kind of fracture, by pressing upon the patella or knee-pan the joint of the knee will be spread apart.

Fractures of the thigh bone generally terminate well if treated properly: in those of its neck, however, in which the capsular ligament is involved, a perfect bony reunion seldom can be effected; a ligamentous union is all we can generally produce. Dr. Gibson, in his work on surgery, remarks, "Scarcely, indeed, is it possible to find on record, a well-attested example of perfect bony reunion after such an accident."

TREATMENT.—This consists principally in replacing and keeping the fractured bone in its proper place, together with diet, and sometimes constitutional treatment. Splints of various kinds are used in treatment of fractures, and I will here give a brief description of some of them. Desault, an eminent physician of Paris, invented a splint that has been much used, and is called after his name; it consists of a thin piece of board, long enough to extend from a little above the hip to the foot, about five inches wide at the upper end and tapering gradually to about three inches at the lower end. The lower end is then fastened firmly, flatwise, to a piece of strong wood, about two inches wide and six inches long, to rest on the bottom of the foot; the short piece is perforated with two holes on each edge, through which a bandage is passed, and so around the foot, keeping the splint upon the outside of the leg. At the upper end is a strap, which passes between the legs and is buckled or tied at the point from which it started, by this means keeping clear of the thigh. By this method, extension and counter-extension can be made in any part of the thigh. Another splint on the inside of the thigh will be found of advantage. In using these splints, first pass a bandage loosely round the thigh, have the splint well padded to avoid irritation, and lay them on over the bandage, fasten the foot as before described, and draw the upper strap until sufficient extension is produced, then pass a bandage snugly round the whole, and let the patient remain on his back.

The late Dr. Physic, of Philadelphia, made an important improvement in the above-described splint by extending it up to the axilla, or arm-pit, the head being formed like a crutch, well padded, thereby making extension without producing the irritation in the perinæum usually caused by the strap of the short splint.

Another kind of splint that is very good, is made by grooving out a piece of wood to suit the leg, reaching from the upper part of the thigh to near the ankle: where it passes under the knee it is cut in two, and a hinge is inserted. The leg is placed in the groove and the middle raised to an angle that circumstances may require; thus the muscles are constantly on a stretch by letting the leg hang over this inclined plane, and in this way the fractured ends are kept in coaptation. This, as well as all other splints, should be well padded, and sufficient bandages applied around the leg, and splints to keep the parts steady.

A substitute for this form of splint is sometimes made by taking two pillows and sewing the ends together, and placing another, endwise, under where

the two are joined together, and lay the fractured limb over it. This is a very good way.

The principle on which the double inclined plane acts is, the weight of the limb below the knee pulling constantly upon the thigh at one end, and the body at the other; in that way extension and counter-extension is produced.

It is very necessary that the patient should keep as still as possible and not move about in bed. Should there be inflammation in the limb, keep it wet with vinegar and water, the anodyne wash, or some other cooling and evaporating lotion. Keep the bowels open by laxatives, and if necessary purge: contrive some way, if possible, to keep the bed-pan under the patient without disturbing the limb. When there is so much tenderness in the limb that the bed-clothes become annoying, they may be kept up by hoops placed over the leg. There must be considerable judgment exercised on the part of the surgeon, in this case, as well as in all others, in varying the application of dressing and all other matters to suit the circumstances of the case. The diet in the robust habit should be light, and in the weak and delicate, it should be more nourishing.]

FRACTURES OF THE KNEE-PAN.

Fractures of the knee-pan, unless well managed, are apt to terminate in a stiff joint: This may sometimes proceed, however, from keeping the leg too long in an extended and immoveable posture.

In the treatment of fractures of this bone, in whatever direction they run, the leg should be extended in order to relax the only muscles with which it is connected. This being done, a long firm splint of timber, thickly covered with soft wool or flannel, should be placed beneath the leg and thigh, from one extremity to the other: and to this let the limb be secured with a strap above and below the knee.

The different parts of the fractured bone are now to be brought as near together as possible with the hand; but no bandage is yet to be applied. The first object is to prevent inflammation. This being done, if the parts appear to be nearly or quite in their place, they ought not to be disturbed. The joint may be covered with some cooling application, by which it will be kept soft and easy. But if the broken parts, instead of being nearly in contact, are found separated to any considerable extent, we ought first to replace them, and then endeavor to retain them by the application of bandages. In fractures lengthwise of the leg, this is easily done with the common uniting bandage. But in transverse fractures, the action of the muscles continually tends to separate the broken parts, and we cannot replace them easily.

It will be obvious to the practitioner, that the bandages required in this case, must be of a peculiar construction. [The most simple kind of bandages to bring the fractured fragments together, can be made by fastening a handkerchief tight around the leg above the knee, and another in the same manner below; pass a ribbon on each side of the knee and through each bandage or handkerchief. In that way, you can bring each fractured end together, or nearly so by drawing the two bandages as near together as possible.] The limb being secured in this manner, the bandages should not be removed till the twelfth or fourteenth day, if no inflammation intervenes; but about this time the bandage should be removed, and the limb may be moderately bent, and this may be cautiously repeated every third or fourth day, in order to preserve the motion of the joint.

The joint of the knee is liable to another injury something similar in its effects to the fracture of the pan; namely, a separation by violence of the ligaments of the knee-pan. The usual effect of a smart stroke or a severe fall upon the forepart of the knee, is a fracture of this bone; but where a person carrying a heavy burden upon his back falls with his knee much bent, a

rupture of the tendon more frequently happens, which sometimes retracts two or three inches.

The treatment advised for a fracture, proves equally successful here ; only in this case we have to trust entirely to the extended posture of the limb ; and although the tendon and bone cannot be brought close together, the cure may always be accomplished.

FRACTURES OF THE SHIN BONES.

In fractures of the leg, one or both bones may be broken ; the latter is more frequently the case, and then the direction of the fracture is more easily perceived. When one bone only is broken, the nature of the injury is discovered with more difficulty ; but this is of little consequence, as the sound bone so effectually supports the other, that little more is necessary than confinement till the bone is united.

Fractures are more frequent near the joint of the ankle than in other parts.

[Compound fractures more often occur at this place, than in any other bones of the body, and frequently endanger the patient's life, and often causes an amputation. There is often great difficulty in returning within the wound the fractured ends, if they project out through the common integuments. Compound fracture requires great care, for inflammation often sets in very violently, and carries off the patient in a few days.]

The bone is generally broken an inch or two above the lower end, as that is the weakest part.

The same management proposed in fractures of the thigh bone, is applicable in fractures of the leg ; in replacing the bones, the muscles should be relaxed, and this is done by bending the knee and slightly extending the foot.

[The proper splint for this form of fracture is Desault or Physics altered splint, as recommended in fractures of the thigh.]

FRACTURES OF THE BONES OF THE FOOT AND TOES,

Are to be managed nearly in the same manner with similar injuries of the hands and fingers ; it is therefore unnecessary to particularize.

COMPOUND FRACTURES.

A compound fracture is when the skin is broken, either by splinters of bone protruding through the flesh, which often happens when the leg is broken by jumping, or by leaping from a carriage under full speed ; or by an external bruise.

The admission of air, undoubtedly, to the wounded flesh, is the reason why compound fractures are so much more hazardous than simple. The worst variety of simple fracture will continue to do well as long as the skin remains entire ; but if, by any accident, the point of the bone is pushed through the flesh, from that moment the pain becomes severe ; inflammation and fever take place ; the limb is apt to be attacked with severe spasmodic twitchings ; and to these gangrene or extensive suppurations frequently succeed, if not prevented.

In the treatment of a compound fracture, our first object is to stop the effusion of blood, if considerable ; and then to consider whether we should attempt to save the limb, or amputate it. And it should be a very severe and hopeless case, to render amputation necessary, in my opinion. It has been the common custom with surgeons, of late years, to take off the limb without much hesitation whenever a fracture of this kind is severe, or presents an untoward aspect ; and I have no doubt that this operation is often performed unnecessarily.

It is my firm belief, and I judge from experience, that there seldom occurs a case of compound fracture so bad, that might not, with proper means, and proper care and attention, be made whole, and the limb restored to usefulness. The danger of mortification appears to be the most urgent motive for amputation; but I never experienced any difficulty from this when the proper antiseptic applications were made use of, as charcoal and yeast, and the like, and also by keeping the air excluded from the wound. Hæmorrhage is another difficulty that often occurs in these fractures; this must be stopped, by compression, with the tourniquet, if necessary, or by a ligature upon the artery.

In the treatment of compound fractures, our object is the same as in the management of those of the most simple nature; namely, to replace the bones that may be deranged, and to retain them until they are united.

In the first place, all extraneous bodies should be removed, as well as the small pieces of bone that will not probably unite with the rest; for which purpose, the opening, if too small, should be enlarged with a scalpel. And this being done, we in general find that the bones are easily replaced, by relaxing all the muscles of the limb, as before directed. Sometimes, however, a sharp point of a bone is so far pushed through the teguments, that it cannot be replaced by ordinary force. In this situation, we should either saw off the end of the protruded bone, or enlarge the wound. When a long sharp bone is much protruded, it should be removed. In making incisions, we are to take care to avoid the arteries.

The splinters of bone, coagulated blood, and other extraneous bodies being removed, any artery that may be cut being secured, and the protruded bones replaced, a pledget of soft lint with ointment, should be laid over the wound, and the limb placed in a firm splint, in a relaxed posture. As it will be necessary to dress it frequently, in order to remove the matter as it collects, the limb, with the bandages should be so placed that this may be done without disturbing it.

Inflammation is particularly to be guarded against, as from a high degree of this, mortification ensues, and also those extensive collections of matter which sometimes occur; therefore, the applications before mentioned may be used, for promoting the formation of pus, and cooling the inflammation.

In some cases when the humors of the system are vitiated, and the discharge from the sore great, I have found the Antimercurial Syrup, very useful in promoting the healing of the wounds.

[When the fracture is simple, and no parts are likely to slough, after the swelling and inflammation have subsided, the limb may be dressed in the following manner: roll a bandage snug, but not tight, the whole length that is necessary to be dressed, having the limb in its proper place. Then take bandages, previously wet through with stiff starch, and wind them around the limb as far up and down as the dry bandage was previously put on; put the starch bandages four or five thickness, then let the whole dry; in this way the limb cannot move in any direction. The surgeon must take great care that all is in the proper place at the time the bandages are drying, or he will have a deformed limb. In this form of treatment I have seen patients walking around in four or five days after the injury, although some portion of the bone was broken. It will not do for patients to use much exercise for fear of inflammation. When the injury is in the leg, if there is inflammation, the bandages must be wet with warm water and taken off. If there is much pain, they must be removed. This treatment relieves the patient from being confined so long on the back, which is so very distressing to some, and there is not so much danger in moving, and many other distressing complaints arising from a long confinement to the bed.]

DISLOCATION.

A bone is said to be dislocated, or luxated, when that part of it forming a joint is displaced. Dislocations may also be simple and compound: simple, when the end of a bone is merely displaced; and compound, when the surrounding soft parts are injured.

For the most part luxations are produced by external violence, as from blows, twists and strains, in leaping, wrestling, or falling. But they are also produced by other causes, as a morbid weakness or relaxation of the ligaments of the joint, which sometimes occur as the consequences of palsy, chronic rheumatism, &c., particularly in the hip-joint. These last, however, being the effect of disease, will be treated of in another place.

Dislocations produced by external violence are chiefly the objects of surgery. The symptoms usually induced by these, are, inability to move the injured limb; pain, tension and deformity in the part affected; and in some cases, inflammation, spasms, and fever.

Compound dislocations are obvious enough; but partial dislocations should be minutely examined, and not suffered to pass as sprains and contusions of little consequence; for in this manner, many are rendered lame for life, when a little attention might have saved them.

The skeleton is commonly had recourse to for a knowledge of the joints; but this alone is not sufficient, some knowledge of the cartilages, ligaments and tendons with which the bones are connected, is requisite, in order to give a correct idea of the injury. There are two varieties of joints: one the ball and socket, which admits of motion in all directions, as the hip and shoulder; the other, hingelike, which admits of only flexion and extension, as the elbow and the knee. These last are less liable to dislocation.

Besides the usual covering, every joint possessed of much motion, is provided with what is termed a capsular, or bag ligament, which forms a kind of pouch or bag, that completely surrounds the articulation, and serves at the same time to retain the ends of the bones together, and to contain a transparent fluid, for the purpose of lubricating the joint and cartilages. This ligament is always ruptured when the joint is completely dislocated, and often torn from its insertion around the bone.

One of the most unfavourable circumstances with which dislocation is ever attended, is a fracture of one or both the bones forming the joint; for severe inflammation, suppuration, and stiffness of the joint is apt to be the consequence.

When a bone is out of joint, the sooner it is replaced the better, and generally, the easier; except when the inflammation and swelling are very severe, in which case, these must first be relieved as much as possible, before we attempt it. When a joint is out, and has lodged several weeks or months among the contiguous muscles, the head of the bone forms a socket for itself, and is commonly firmly grasped by the muscles with which it is surrounded. By this time, too, the cavity or socket, will probably in some degree be filled up. In these cases the reduction must be done gradually, by extending it by little and little, till it can finally be brought in without much pain.

The treatment of common dislocations is very simple, and may be told in a few words: the first object is to put the displaced bone into its natural situation with as much ease and expedition as possible. To do this, the limb should be placed in that position which will most relax the muscles; and then sufficient strength exerted to draw it into its place; or it may be done in the more homely way, as I have often seen practised among the farmers, and almost invariably with success, of making the patient drunk, which most effectually unbraces the nervous and muscular power; thereby rendering the reduction easy. The second object is, to keep the bone in its place, till the

parts have recovered their tone ; this, which is seldom difficult, however, is to be done by keeping the limb in a relaxed posture, and, if necessary, by a bandage. The third object is, to prevent pain, inflammation and other bad symptoms. The anodyne wash, I have found exceedingly useful for this purpose, and is generally sufficient. Leeching may also be beneficial in some cases.

In compound luxations, where the skin is broken and the flesh bruised, the mode of treatment is very similar to that of compound fractures.

We shall now proceed to speak of the most important of the dislocations to which the human frame is subject, as they occur in particular parts.

DISLOCATION OF THE LOWER JAW.

The under jaw can only be dislocated forward and downward. In every other direction, the hinges are so much surrounded with bone, that they cannot be forced out of their sockets ; but when the mouth is widely opened, as happens in yawning, the joint is apt to slip out in a forward direction. Sometimes only one side of the jaw is dislocated.

In these luxations the chin is thrown forward and downward, the mouth wide open, and much pain accompanies every attempt to close it ; and the patient cannot speak distinctly, or swallow without great difficulty.

The patient being firmly seated on a low chair, with his head properly supported behind, the surgeon standing before, with his thumbs sufficiently guarded, should push them as far as they will go between the teeth of the upper and under jaws, the under or flat part of the thumbs being placed on the teeth of the under jaw ; the palm of each hand should be applied to the outside, while with his fingers he lays a firm hold of the angles of each jaw. With the fingers applied in this manner, he should pull the under jaw forward, till he finds it move somewhat from its situation ; and this being done, but not till then, he should press the jaw forcibly down with his thumbs, and moderately backwards with the palms of his hands ; when, if the different parts of the operation are rightly managed, the ends of the bone will immediately slip into their place ; upon which the thumbs should be instantly withdrawn to prevent being bitten.

The jaw being reduced, the patient should be advised to avoid gaping, yawning, and much speaking, as the joint may be easily turned out for some time.

DISLOCATIONS OF THE COLLAR BONE,

Are not common ; they are more liable to be broken. They may be luxated, however, at either end, though usually at its junction with the breast bone.

As the collar bone is thinly covered, dislocations of their extremities are easily discovered ; they commonly produce a good deal of stiffness and immobility in the shoulder ; for the neck of the shoulder-blade, having lost its support, is liable to be drawn out of its situation.

A dislocation of this bone is easily reduced by pressure with the fingers. The difficulty consists in keeping it in its place. The weight of the fore-arm ought to be moderately supported, and a little pressure made upon the displaced end with a bandage.

DISLOCATION OF THE HUMERUS.

The joint of the shoulder is formed by what is usually termed ball and socket, the round head of the arm bone being lodged in the cavity of the scapula. This cavity, however, is so superficial, that, in the bone, it does not appear to contain above a tenth part of the head of the arm ; but the cavity is considerably enlarged by means of a cartilaginous brim ; and a capsu-

lar ligament surrounds the whole joint. This mechanism makes the motion of the joint more free; but at the same time exposes it to more frequent luxations.

The arm bone is most frequently luxated downward into the axilla. It may also be drawn downward and forward, resting on the ribs; or downward and backward.

We judge that the arm bone is out of joint, by the patient being unable to move the arm; by pain being excited by pressing the arm to the side; by its being longer or shorter than the other arm, and a depression under the acromian process.

In simple dislocation of the shoulder, the reduction is easy, if properly managed. But if it has been long out, the operation is more difficult; for in such cases the head of the bone has formed a socket for itself among the contiguous parts, from whence it cannot be moved without tearing asunder some of the muscles which surround it; and even then the natural socket may have become so diminished, or grown up, as to be almost unfit to retain it. In such long standing cases, however, we must attempt the reduction gradually.

Various modes of replacing this bone are practised; but as no surgeon can be at a loss, as to what should be done, I shall not particularize much.

The joint is somewhat replaced by putting the naked heel into the armpit, inside of the arm, and then extending the arm, till, with the heel pressing out the head of the bone, it slips into its place. It may be reduced also, by extending the arm, inclining a little outwardly from the body, till the joint comes in place; or while the arm is thus extending, to pull the head of the bone outwardly into place, by a towel or handkerchief around the arm, at its upper end. Another method, and perhaps equal to any, is, to extend the arm, with its muscles and those of the fore-arm, relaxed as much as possible, and, at the same time, to push back the shoulder-blade, thus favoring the reduction.

DISLOCATIONS OF THE ELBOW-JOINT.

The bones of the fore-arm are generally dislocated upward and backward; and they can scarcely be dislocated in any other direction without a fracture.

As the joint of the elbow is but thinly covered, a dislocation is easily discovered by the feeling, unless swelling and tension have taken place. In whatever way the joint is out, the arm becomes stiff and immovable.

In setting these bones, the patient should be seated on a chair of a convenient height, and the arm firmly secured by an assistant. When the bones are luxated backward, the fore-arm should be moderately bent, in order to relax the flexor muscles; while in this position it should be slowly and gradually extended; and if care be taken, to slowly bend the elbow as the extension is made, we seldom fail to replace the joint. In some cases, where the point of the elbow is broken, it may be necessary to extend the arm in a straight direction, till the joint comes in place.

The reduction being completed, the fore-arm should be kept in a relaxed position, with the elbow moderately bent.

The bones of the fore-arm are also liable to be dislocated in their connexion with each other. This is most common at the wrist. It is accompanied by pain, swelling, and distortion, and other signs of luxation. In general the bone is easily replaced, but it is more difficult to retain it. The best method, perhaps, of doing it, is by splints and bandages continued for a sufficient length of time.

DISLOCATIONS AT THE WRIST.

The bones of the wrist are so firmly connected together by ligaments, and so well adjusted by their position, that they are not so often displaced as might be expected. When they are so, however, it is generally outwardly.

The dislocation of these bones is readily perceptible to the sight and feel, and we should examine carefully that we do not let it pass as a mere sprain.

To reduce these bones, the hand and arm should be extended, and they may be easily pushed in their place; when a bandage and splints should be applied to retain them.

BONES OF THE HAND AND FINGERS.

These bones, notwithstanding their mobility, are sometimes displaced, which may be easily discovered on examination, and as easily replaced.

DISLOCATION AT THE HIP-JOINT.

The head of the thigh bone is so strongly and completely enclosed by the capsular ligaments and muscles, that we would suppose it hardly possible it should be thrown out of joint by external violence: it would appear more likely to be broken at the neck, than to be forced from its socket. Such is frequently the case; but nevertheless, dislocations do often happen.

Dislocations of the thigh bone may take place in various directions, viz.: upward and backward, upward and forward, downward and backward, downward and forward, and directly downward. These all may happen; but the most common variety is, downward and forward, by which the head of the thigh bone is lodged in the foramen thyroideum.

Every luxation of the thigh bone, must produce lameness, pain, tension, &c. When the head of the bone passes upward and backward, the leg must be shorter than the other, so that the points of the toes only will touch the ground when the patient stands on the other foot; and the knee and foot will be turned inward.

When the bone is luxated upward and forward, the leg must be shortened; the head of the bone may be felt in the groin, and a vacancy in the hip; the knee and toes will be turned outward, and if not soon replaced, the pressure will cause pain in the spermatic cord, and testicles of males.

In the most frequent luxation of this bone, viz.: forward and downward, the leg appears to be considerably longer than the other; the knee and points of the toes are turned outward; a vacancy is felt in the hip, and the head of the thigh bone may be plainly felt a little below the groin, in the round hole of the innomenata.

A dislocated thigh bone is generally considered very difficult of reduction, particularly in cases of long-standing, and great power is considered requisite.

The reduction of this bone is commonly attempted by pulling the limb downward. Some advise the limb to be drawn directly from the part in which it is lodged; others advise it to be pulled exactly in a line with the hip-joint. The patient being placed upon his back, and properly secured, the limb is extended in one or other of these directions, till the reduction is accomplished, or till such a force is applied as makes the operator afraid to proceed further.

Dislocations of this bone are often reduced in this manner, even without any relaxing application: but it will not succeed in all cases, and cannot, therefore, be trusted in as a general rule.

In severe cases, and when the head of the bone is pushed downward and forward, the following method will usually succeed:

The patient is laid on his back across a bed, and firmly secured by two or three assistants; a broad strap, or table cloth, properly folded, is passed between the thighs and over the groin, on the sound side, and given to two other assistants; a similar strap is to be passed round the luxated thigh, as near as possible to the head of it; the ends of which must be given to an assistant, standing on the opposite side; a stiff leather belt having been fixed closely round the thigh, above the knee, with straps fastened to it to pull by, these straps are to be given to an assistant or two, while the knee is supported by another assistant with the leg moderately bent. The thigh is now to be moderately stretched by the assistants who have charge of the straps at the foot; but the extension should not be carried farther than what may be considered necessary for drawing the head of the bone down to the under part of the socket; and this may be done with moderate force. The strap round the top of the thigh must now be firmly pulled by those who have charge of it; who, standing somewhat higher than the patient, should draw the thigh upward and inward; and the extension should be continued in this direction till there is reason to suppose that the head of the bone is clearly raised from the hole in which it is lodged. At this time the person at the knee should be desired to move it somewhat inward, and push the head of the bone upward and outward; this can be done with certainty if he takes care to keep the leg just so much bent as to relax the muscles. If all the assistants perform their parts, the first attempt will generally answer.

In whatever direction the bone may be dislocated, the point requiring most of our attention is the raising the head of the bone sufficiently, before any attempt is made to force it into the socket. This being accomplished, a very slight force will in, general, draw it down, when the dislocation is upward; and when downward, it may be easily pushed up.

In this manner recent luxations of this joint may, for the most part, be reduced; but in long-standing dislocations, it can only be effected gradually, by the continual application of relaxing ointments, and by extending the limb, daily, more and more, as the patient can bear, till it can finally be drawn into place. All this should be done in a moderate manner, and without forcible or painful means.

The limb should be kept at ease, and carefully attended to for some time after it is set, before the patient should venture to use it much.

DISLOCATION OF THE KNEE-PAN.

The knee-pan may be dislocated either partially or wholly, and in any direction laterally; this may also happen at the same time with a dislocation of the knee-joint. It cannot, however, be completely luxated, without a rupture of the ligament that connects it with the shin bone, or the muscles of the thigh.

A dislocation of the knee-pan is easily discovered, and as easily replaced, when the leg is laid straight. But even a partial dislocation is apt to occasion lameness and pain at the joint; together with indolent swellings. These are, therefore, to be guarded against.

DISLOCATION OF THE KNEE-JOINT.

The shin bone of the leg only, is concerned immediately in the joint of the knee; but as this bone cannot be dislocated without drawing the other after it, I shall mention both together.

As great strength is required in the knee, the bones of which it is formed are connected together by the strongest kind of articulation, viz: the hinge-like joint; and this is firmly tied together by strong ligaments. An unusual degree of violence is, therefore, requisite to force these bones out of joint,

and this cannot be completely done without rupturing the ligaments of the joint.

The most partial luxation of this joint is readily distinguished by the violent pain it excites, and by the deformity and lameness it produces. When the knee-pan is dislocated at the same time with the shin bones, it will generally come in place on the reduction of these bones.

Luxations of this joint should be replaced by fixing the thigh with sufficient firmness, and extending the leg till the ends of the bones are entirely clear of each other, when they are easily brought into their proper position. Where the bones are completely displaced, considerable force will be required to effect their reduction.

Scarcely any joint is so apt to suffer from inflammation, as that of the knee, and also to become exceedingly painful; these, therefore, should be properly guarded against, and the limb for a considerable time kept at rest after the luxation is reduced.

The upper as well as the lower end of the outer shin bone is sometimes forcibly separated from the shin bone; and this is apt to be overlooked as a sprain, and the bone suffered to remain out of place. Strict examination should therefore be made in such cases.

DISLOCATION OF THE ANKLE.

The ankle bone may be luxated either backward or forward, outward or inward, but more frequently in the latter direction. A displacement is easily discovered by the distortion, pain, and lameness.

To reduce this dislocation, the leg being properly bent and relaxed, the foot should be extended till the point of the ankle bone is clearly past the end of the shin bone, when it will readily slip into its natural situation, or can be pushed in.

As dislocation of this joint, if not rightly replaced, and carefully attended to, may produce weakness and lameness through life, particularly if the end of the outer shin bone should be broken off, by the foot being forced outward; great care should be taken in setting these bones, and afterwards in keeping them in place till the fracture is perfectly united, and the ankle become strong.

DISTORTED LIMBS.

Limbs may be distorted from a morbid state of the bones, or from a contracted state of the muscles, or both, or from malformation; and they arise in all periods of life.

In infancy the bones are soft and pliable, and are easily affected by the posture of the body. The bones of the legs are apt to become crooked, by causing children to walk too early. The rickets will also cause crookedness by softening the bones so much that they yield to the ordinary action of the muscles. But the most frequent cause of distorted limbs, is the contraction of the flexor muscles of the leg and fore-arm, which are often preceded by an inflamed state of the knee and elbow, and particularly in white swelling. As the limb lies in greatest ease while the muscles are relaxed, the patient naturally keeps it always bent. A clump foot is also frequently produced by contraction of the tendon of the hollow of the foot.

With the majority of physicians it has been supposed that little advantage is to be derived from any remedies for distorted limbs; and they have therefore seldom made any attempt to cure them. This opinion could not have arisen from the absolute incurability of the disease, but merely from ignorance of the proper means. And thus (no compliment to such physicians),

many who might have been relieved, have been suffered to continue deprived of the use of their limbs, in the belief that they were incurable.

Where a limb is distorted from a stiff and contracted state of the muscles and tendons, a free use of emollient and relaxing oils and ointments, with moderate gradual extension, is a remedy which frequently succeeds, and can never do harm. To give them their full effect, the emollients should be used very freely. All the contracted muscles and tendons should be rubbed with them warm, for at least half an hour, three times a day, and the limb should be kept constantly wrapped in flannel wet with the unction. While the frictions are applying, the limb should be slowly, though firmly extended, as much as the patient can bear; and the limb afterwards kept as much as possible from contracting. It is necessary, however, to remark that this extension should not be made quickly: by doing so, if the joint happen to be stiff, which is sometimes the case, we may cause inflammation and pain, by overstretching it: therefore the extension should be made in a gradual manner, and without much force.

The oils most useful for the above purpose, are bear's oil, rattle-snake's oil, neat's-foot oil, goose, hen's, and duck's oil.

CONTRACTED TENDONS.

[Within the last few years a new plan has been resorted to, to lengthen contracted tendons and muscles: this method consists in the following operation:

Suppose, for illustration, that the tendo Achillis (the strong tendon of the heel) from some cause or other, is preternaturally shortened or contracted, producing a distortion of the foot; by lengthening this tendon, of course, the deformity is overcome. On performing the operation for dividing the tendons (if the tendo Achillis), the patient should be laid on a bed, on his abdomen, with his feet hanging a little over the edge. The surgeon should then take a knife having a blade about two inches long and one eighth of an inch in width, made very sharp at the point, in his right hand, and the heel of the patient in his left, press down, rendering the tendon tense, put the point of the knife to the outer edge of the tendon, with the back upwards, pushing the knife along between the skin and tendon; when the point of the knife has just passed beyond the tendon, the surgeon must press on the knife until it cuts the tendon apart; this will be known by the foot dropping.

Any tendons about the foot, knee, arm, or hand, can be treated in the same manner. Care must be taken when dividing tendons near large blood vessels. If the case is of long standing, it will require splints and bandages to retain it in the desired position. These dressings must be applied for some time; in this way a cure has been effected of cases the most desperate.]

AMPUTATIONS.

By amputation is meant the cutting off the whole or part of a limb. The mutilation produced by the operation renders it one of the most dreadful in the practice of surgery; yet it sometimes becomes necessary as the only means of saving life. It is an operation, however, so repugnant to humanity, so distressful to the unfortunate sufferer, and in some circumstances so fraught with danger, that nothing but a clear conviction of this necessity can warrant our proposing it in any case.

The operation itself is not difficult; every practitioner accustomed to the handling of instruments may perform it. But to distinguish with precision

the cases which require it from those which might do well under a healing treatment, and to determine the particular period when it ought to be performed, are circumstances which require more deliberation than, perhaps, any other in surgery. I shall, therefore, mention the cases wherein it may be proper to amputate, before proceeding to describe the method of performing it.

The only causes which, in my view, may render amputation necessary, are :

1st. Bad compound fractures.

2d. When a portion of the limb is carried off by a cannon ball, or in any other manner, if the bones are unequally broken, and not properly covered ; and,

3d. Particular distortions of a limb, in which case amputation must be a matter of choice, rather than of necessity.

When bad compound fractures happen in the army or navy, where the patient cannot be properly attended to, and must be jolted about, and removed from place to place, it may be proper to amputate immediately, as the only course admissible under these circumstances. But in private practice, and in all cases where the patient can be placed in an easy and comfortable situation, from which he need not be removed till the cure is completed ; where he can be kept quiet, and have all the advantages of good air, a proper regimen, and the assistance of capable practitioners, very few cases will occur in which immediate amputation should be advised. The only cause which, in such circumstances, can render immediate amputation proper, is, the bones of a limb, together with the muscles and other soft parts, with which it is covered, being so shattered and bruised that there will be no chance of the limb being rendered useful by any attempt to save it : in such circumstances it should be removed immediately ; but this not being done, the operation should be delayed till the swelling, inflammation, and fever, induced by the accident, are removed.

Although an early amputation is seldom recommended in private practice, yet, in the after-treatment of compound fractures, it is sometimes proper, viz : in profuse hæmorrhage, which cannot be otherwise stopped ; and when ends of the fractured bone remain long disunited, and attended with the discharge of such large quantities of matter that the patient runs some risk of sinking under it : and when this cannot be prevented by other means.

The second case mentioned, as requiring amputation, was, the removal of a portion of the limb by a cannon ball, or other violence.

In wounds of this kind, the bones are commonly much shattered, and even splintered, and the muscles and tendons are left of unequal lengths, and much contused and lacerated. In this situation it is allowed by all, that the separate pieces of bone, and the ragged extremities of the muscles, should be removed. Now all this could seldom, I believe, be done in less time than the operation of amputation ; while by amputating above the injured part, and covering the bone with sound muscles and skin, we diminish the sore so much that it would probably heal in a third part of the time that the original wound would require ; at the same time, the patient would have a good stump, which is of considerable consequence as a matter of convenience through after-life.

In the other case mentioned, namely, distorted limbs, when they are sound otherwise, amputation is made necessary only by the choice of the patient.

Besides the causes above-mentioned, it is a very general practice with most surgeons to amputate in the following disorders, viz : extensive mortification ; white swellings of the joints ; large hard swellings of the bones ; caries of the bones, accompanied with bad ulcers ; inveterate ulcers ; indolent tumors ;

death and rottenness of the bone; and extensive lacerated and contused wounds.

To stop the progress of mortification, poultices of charcoal and yeast may be applied, or these mixed with a strong decoction of wild indigo root; and these should be applied unsparingly, and changed very often, till the mortification is arrested. At the same time, tonics of the most bracing kind, may be given internally. When the disorder stops, the "green salve," or something similar, may be applied over the affected part, which will assist in the separation of the dead flesh, and bring the parts to a healthy appearance.

White swellings at the joint, is another disorder in which amputation is frequently practised. I cannot consider this judicious, because, first, when proper means are used, they can generally be cured without; and secondly, as they proceed from constitutional affection, or a scrofulous taint, it follows that a removal of a part of the body cannot eradicate the disease from the remainder.

The impropriety of the operation holds the same also, in cases of caries, and hard swellings of the bones, death of the bone, inveterate ulcers, tumors, &c.: their cause is constitutional, and they must be removed by general purifying remedies, if removed at all.

REMARKS ON THE METHOD OF AMPUTATING.

Surgery is not, perhaps, in any part of it, brought to greater perfection than in the method of amputating limbs. Before the invention of the tourniquet this operation was attended with so much hazard, that few surgeons ventured to perform it; and even long after the introduction of this instrument, the danger attending it was so great, that more than one half perished of all who had resolution to submit to it. In the present improved state of the operation, with ordinary skill, not more than one death will happen in twenty cases, and even in less proportion.

The circumstances in this operation, that more particularly require attention are, the choice, when this is in our power, of the part at which a limb should be amputated; the prevention of hæmorrhage during the operation; the division of the skin, muscles, and bones in such a manner as to admit of the stump being completely covered; the tying of the arteries alone, without including the nerve or any of the contiguous parts: securing the integuments in a proper situation, so as to prevent their retraction after the operation; and a proper after-treatment.

Next to securing the patient against loss of blood, it is most important to save as much of the soft parts as will cover the stump, so as to heal the sore by the first intention; for without this the wound is large, the cure tedious, and the discharge from the wound apt to be so great as to endanger the patient's health.

Various means of amputating have been practised in different ages, and improvements made from time to time, till the science may now be considered as quite perfect. The method practised and recommended by Mr. Benjamin Bell, appears to be the most rational and successful; and I shall therefore give it in his own words:

AMPUTATING THE THIGH.

In amputating the thigh or leg, the patient should be placed upon a table of ordinary height, with the leg properly secured and supported by an assistant sitting before him. The other leg should likewise be supported, at the same time that the arms should be secured by an assistant on each side, to prevent interruptions during the operation.

The flow of blood to the limb should now be stopped by the application of

the tourniquet. The manner of using it is this: Let a cushion, three inches in length, by one inch and a half in diameter, be formed of a linen roller, tolerably firm, but not so hard as to render the pressure produced painful; this being placed upon the course of the principal artery of the limb, let it be firmly secured by one or two turns of a circular roller of the same breadth with the cushion itself. The tourniquet with the strap connected with it, being now placed upon the limb opposite to the cushion, the strap is to be carried round the limb over the cushion, and tightly buckled on the other side. When proper attention is given to this, a single turn of the screw proves sufficient for putting a stop to the circulation of blood in the limb. The instrument should be placed as near as possible to the top of the thigh, and the femoral artery should reach to the groin.

With respect to the proper place for amputating the thigh, it may be observed as a general maxim, that no more of it should be taken away than is rendered necessary by the disease; for the more of it that is left, the more useful it proves.

An assistant should now be directed to grasp the upper part of the limb with both hands, and to draw up the skin and cellular substance as far as possible. While the parts are in this state of tension, the operator standing on the outside of the patient, should divide them with a circular incision down to the muscles; this may be done with one stroke of the amputating knife, or, in large limbs, at twice. The assistant continuing to draw the integuments upwards, the cellular substance connecting them to the muscles beneath, should be divided, till as much of the skin is separated with the edge of the knife, as the operator thinks will completely cover the stump.

The skin being still drawn tightly upwards, the muscles should be divided close to the edge of it down to the bone, by one perpendicular and continued stroke of the knife, beginning with the upper part of the large muscles on the inside of the thigh, and continue the incision round through those beneath, and on the outside, till it terminates where it commenced. The operator should have his eye upon the course of the knife from first to last, in order to avoid cutting the edges of the skin, and conduct the operation safely.

In the usual method of operating, the bone would now be sawed across at the edge of the retracted muscles; but we are more certain of having a good stump, if the muscles are separated from the bone for the space of an inch; and it is easily done by inserting the point of the amputating knife between them and carrying it freely round from one side of the limb to the other. This being done, the muscles and integuments must be drawn up as far as the muscles have been separated from the bone; and it is easily done, either with a slit piece of cloth or leather. The periosteum should now be divided at the place where the saw is to be applied, and it should be done with one turn of the knife. At this place the saw should be applied, and with long steady strokes the bone should be divided. In performing this part of the operation, the assistant holding the leg should be directed to hold it steady, for if raised too far, the motion of the saw will be impeded, and the bone will be splintered if not sufficiently kept up. Any points or splinters of the bone that may be left, should be immediately removed with the nippers.

The retractors should now be taken off; and the trunk of the large artery of the thigh being easily seen, should be drawn up with a tenaculum, and a sufficient ligature put upon it before the tourniquet is removed or loosened; but as the muscular branches of this artery cannot be discovered as long as they are compressed, the screw should be immediately untwisted, so that the pressure may be removed.

All the clotted blood should be now removed from the stump with a soft sponge soaked in warm water; and every artery that can be discovered, should

be secured with a ligature, care being taken to leave the ends of the threads of a sufficient length to hang over the lips of the wound.

The blood vessels being all secured, and the surface of the wound cleared of blood, the muscles and integuments should be drawn down till the skin completely covers the stump, and should be retained in this situation by an assistant till a flannel or cotton roller, previously fixed round the body, to prevent it from slipping down, is applied in such a manner as to support and fix them; for which purpose the roller should be wound two or three times nearly in a circular direction, round the top of the thigh; and should afterwards, with spiral turns, be brought down near to the end of the stump, of such a tightness as to prevent the muscles and skin from retracting, without compressing them so much as to prove painful or impede the circulation. Here the roller should be fixed with a pin, while as much of it is left as will pass two or three times round the stump.

The ends of the divided muscles being placed with as much equality as possible over the bone, the edges of the skin must be laid exactly together so as to form a straight longitudinal line across the centre of the stump. When only one or two arteries have been secured, the ligatures should be left out at the lower angle of the wound; but when there are several, they should be divided between the two angles.

While an assistant retains the edges of the divided skin in contact, two or three slips of adhesive plaster should be laid across the face of the stump to preserve them in this situation; and the whole surface of the stump should now be covered with a pledget of soft lint.

[There is another manner of amputating the different extremities which I prefer, and especially where there is but one bone: I have reference to the flap operation; this is performed by having the same assistance as before described. The surgeon must grasp with his thumb and finger as much of the parts as he can hold between them, down to the lower edge of the bone, and pull it down, then pass the catling through as close to the bone as possible, cutting obliquely outward; the division of the upper portion of the soft parts is now to be made in the same manner, forming the two flaps as nearly alike as possible; the two flaps must be sufficiently large to cover the extremity of the bone. The bone is now to be sawed off, and the arteries taken up as before directed. Sponge the stump well, and see that the hæmorrhage is stopped: bring the wound together with four or five stitches, then apply a few straps of adhesive plaster, followed with a pledget of lint; a roller, or bandage, should now be passed two or three times around the stump and over its end: the bandage must not be applied very tight. Let the patient now be placed in bed and watched for fear of the event of hæmorrhage, or any other unfavorable symptoms.]

In applying the roller, the tourniquet should be removed, and replaced immediately when the stump is dressed. If left loose it gives no uneasiness: and it enables the attendant to check any hæmorrhage that may take place; a circumstance that merits attention for several days after amputation.

The patient should now be carried to bed, and a hoop frame placed over the stump to keep off the bed clothes; and, to guard against spasms, and prevent the limb from being moved inadvertently, it may be well to confine the stump to the bed with slips of flannel.

Hæmorrhage will sometimes happen, even many hours after the operation; the attendant should, therefore, examine the stump frequently with the utmost care; and on any quantity of blood breaking out, he should twist the tourniquet sufficiently tight till assistance is procured. This can seldom happen except through fault of the practitioner, in not searching for the arteries with sufficient care, and taking them up at the time of

the operation. When there is only a trivial oozing of blood, we need not be alarmed, nor will it be necessary to remove the dressings; but whenever the discharge is so great, that we may suspect it proceeds from a large artery, nothing can be depended upon but tying it.

The only other symptoms that we have reason to dread, during the first three or four days after the operation, are severe spasmodic affections of the muscles, and inflammation and tension of the stump, with the consequent fever, which, in some degree, succeeds every case of amputation, but which always proves hazardous when it proceeds to a great height. When the arteries are tied without including the nerves, these spasms seldom become troublesome; but when they do take place, they must be relieved with opiates, &c.

At the end of the fourth or fifth day, the stump should be examined. For this purpose the stump should be quietly supported by an assistant, till the last turns of the roller are undone.

[In a few cases, the parts are found united by the first intention. But if there is a small quantity of matter over the surface of the stump, and the parts red and painful to the touch, the wound gaping, and other symptoms indicating that the parts will not unite by the first intention, all the dressings must be taken off, and, if necessary, means used to reduce the inflammation. When the stump is redressed the roller must be put on very loosely, and the stump treated as an open wound; the dressings should be changed daily: care must be taken that the ligatures are not torn away. In eight or ten days the ligatures generally come away. As soon as the inflammation has subsided, the edges of the wound may be drawn together by adhesive straps; in this way it will heal more speedily.]

AMPUTATION OF THE LEG.

In amputating the thigh, as much of the limb should be saved as can be with safety; for the longer the stump, the more utility is derived from it; but the leg may be either taken off directly below the knee, or near the ankle, if the disease permits. In the first case, the few inches of the leg left, is usually turned under, and the joint of the knee placed in the box of a wooden leg; thereby precluding the use of the knee-joint, and making the leg stiff and clumsy; but in the other case of amputating near the ankle, or below the calf, a cork leg, or machine, may be fitted to the stump, and used for walking, with so little deformity as hardly to be noticed. Whenever, then, the leg can be amputated in this last place, I would certainly recommend it; not only because it leaves it much more neat and convenient, but because in that place, the leg being much smaller, the operation is more safe, and the wound more readily healed.

When we are prevented by the extent of the disease in the leg, from amputating it below the calf, we are next to determine the most proper place for the operation.

The cure of a stump immediately below the knee is always tedious, owing to the great extent of bone at this place, and the deficiency of soft parts; while in the operation above the knee, the sore will heal in less than half the time required in the other, if well managed. And in regard to the use of the limb afterwards, perhaps the latter is as convenient as the former. Upon the whole, then, it may be advisable that amputation immediately below the knee should seldom be practised. However, as it may sometimes be judged proper, I will briefly describe its peculiarities.

The patient being placed as in the operation upon the thigh, the tourniquet should be applied a little above the knee, with the cushion upon the artery. The skin should be drawn up as in the other operation, and the surgeon, standing on the inside of the leg, should make a circular incision down

to the muscles, so far down upon the leg that when as much of the skin is separated from the muscles as will cover the stump, the muscles and bones may be divided immediately below the insertion of the tendons on the under side of the leg. The soft parts between the bones may be divided with some sharp-pointed knife. The retractors of leather or cloth, must now be applied, and the bone sawed through. What remains to be done is the same as directed in amputation of the thigh.

In the operation above the ankle, the spot should be fixed upon that will leave the stump of the most convenient length for being fitted with a cork leg, or machine, resembling the other leg; and this place will be found about nine inches below the joint of the knee or at the foot of the calf. If the stump were left longer, the artificial leg would require to be made so large, in order to receive it, as to appear disagreeable in comparison with the other leg.

In addition to what I have said upon the method of amputating the leg below the knee, I may observe that, in operating above the ankle, it should be done exactly as I have advised in describing the amputation of the thigh: only in this situation, instead of muscles, we find a portion of both bones covered merely with skin and cellular substance; but as the cellular membrane is here sufficiently lax, and in greater quantity than in the upper part of the leg, it is not only more easily separated from the periosteum, but serves to give the bones a more complete covering; by which, when the operation is properly done, the cure, for the most part, is accomplished in less than three weeks, and the surface of the stump is equal, and every where covered with sound skin.

AMPUTATION OF THE HIP-JOINT.

This operation at best, is extremely hazardous; and I cannot conceive a situation in which a person may be placed, that should render this operation advisable, or necessary, unless, perhaps, from gun-shot wounds; for it will generally be found, than when life can be saved by this operation, it may, with proper means, be saved with far less risk, without it. The parts involved in this operation, are too important, and too near the seat of life, to be taken off with impunity.

[To perform this operation, the patient should be placed upon a firm table, with his nates hanging over the edge, and the limb held by an assistant; another assistant should put his thumb on the femoral artery, just at the point where it crosses the bone under Poupart's ligament, making heavy pressure; much will depend upon the firmness and steadiness of this assistant. The surgeon now places the point of his catling a little below and inside of the anterior superior spinous process of the ilium, carrying it down and a little to the outer side of the bone; he then cuts outward about an inch, and passes over the trochanter major; the incision is now to be continued obliquely downward and outward, to form a flap. The bleeding vessels should now be ligatured. Then the catling is to be entered on the inside, at the same point where it was set for the first incision, only let it be at the inside of the head of the bone; then cut downward, to form a flap, which shall correspond with the first one; the point of the knife must now be carried into the joint; next the capsular ligament cut away, and the head of the bone forced from the socket by carrying the thigh inward. It is sometimes necessary to pass a small instrument between the head of the bone and the socket to divide the ligament.

This operation requires considerable anatomical knowledge, for it is of a most formidable character. The wound is to be dressed the same as in amputation of the thigh.

AMPUTATION OF THE SHOULDER-JOINT.

The best position in which the surgeon can have his patient when about to perform this operation, is to have him seated in a chair, and supported by an assistant. Another assistant should stand behind the patient with the shoulders of the patient resting against his chest; the same assistant will be able to pass one hand over and compress the artery where it passes over the first rib. The surgeon will now begin his incision with a narrow-bladed knife at the anterior edge of the deltoid muscle, a little above the joint; another incision is then to be made on the opposite side; the muscle may be raised up nearly down to its point of insertion. This flap is now dissected up to the point where the incision began on each side. The arm is to be lowered, the capsular ligament opened, and the knife passed around the head of the bone and brought out, to form the flap on the under side. If much hæmorrhage occurs in the early part of the operation, the divided arteries are to be taken up before proceeding to conclude the operation; if this should not occur, the operation may be completed at once, and the vessels afterward secured.

The rest of the operation is to be completed in the same manner as in all flap amputations; a bandage is required sufficiently large to cover the whole shoulder.

In the performance of this operation, the surgeon must have the aid of good assistants.]

AMPUTATION OF THE ARM.

The general observations made upon the method of amputating the leg and thigh, apply equally to the amputation of the fore-arm and arm. And it is only necessary, therefore, for me to observe that, in taking off the arm, no more of it should be removed than is diseased; for the longer the stump is, the more useful it proves; and the same attention should be given to the saving of the integuments for covering the sore that is advised in amputating the leg.

ISSUES.

Issues are small artificial ulcers that we form in different parts of the body, for the purpose of procuring a discharge of purulent matter.

Issues serve as drains for noxious humors, and to draw away the determination from a more vital or important part; and I have found them to be of great utility in many cases, particularly in chronic affections of the head and eyes, when I place the seton in the back of the neck. Generally it is not necessary that they be placed near the affected part; for as they prove useful by the quantity of matter they afford, it is of little importance where they are placed; and accordingly they may be inserted where the patient thinks it most convenient.

Some general rules should be observed in the introduction of setons. They should never be placed immediately above a bone thinly covered; nor directly above a tendon; nor very close to a large blood vessel or nerve; nor upon the belly of a muscle. The best situation for issues is that space which lies between the tendons on the back part of the neck, where there is considerable depth of cellular substance; and in the middle of the upper-arm. They likewise may be inserted between the ribs, on each side of the back bone, in the lower part of the calf of the leg; or, in short, wherever there is a sufficient quantity of cellular substance for the protection of the parts beneath.

Issues may be formed in various ways: by corroding applications; by in-

cisions; caustic; or the insertion of a cord. This last is the most common. This cord should be of cotton or silk, and its average size that of a common goose quill. It should be inserted with a large flat seton needle, and drawn through an inch or two, while four or five inches may be left hanging out at the other end. The irritation which the cord excites is soon followed by a plentiful discharge of matter, which may be increased or diminished at pleasure, by covering the cord daily, before it is drawn, with a mild or irritating ointment. The seton should be drawn the length of the wound daily.

TAPPING THE CHEST.

The operation of tapping in the chest is always indicated where the action of the heart or lungs is much impeded by fluid collected in the cavity of the chest.

The different kinds of fluid met with in the chest, and requiring to be drawn off by this operation, are, serum, blood, pus, and air. The symptoms of each of these may vary according to the nature of the disease, or of the accident giving rise to their formation. But it is their effect on the motion of the heart and lungs, to which practitioners ought chiefly to attend; and this will always depend more on the quantity than on the kind of fluid that is collected.

Collections of serum in the chest are frequently combined with dropsy in other parts; but we often meet with it as a local affection; and it is in this case chiefly, that any advantage is to be expected from an operation. These collections may take place in either or both of the cavities of the chest, and also in the inclosing membrane of the heart. Distressful symptoms accompany these collections; but it requires much attention to ascertain their existence, and especially their situation, with sufficient precision to warrant an operation of such importance as tapping the chest.

A patient who complains of a sense of weight or oppression in the chest; of difficult breathing; of more uneasy sensations in one side of the chest than in the other; of being liable to sudden fits of starting during sleep, from fear of immediate suffocation; and if, along with these, he is distressed with a frequent cough; if the pulse is small and irregular; and if a dry skin, scarcity of urine, swelled limbs, and other symptoms of dropsy take place, little doubt can remain of water being collected in some part of the chest. A sense of undulation, as of water passing from one side of the chest to another, is sometimes observed by the patient on rising suddenly from a horizontal posture; and this may serve to assist in ascertaining the nature as well as location of the disease.

In examining the chest the patient should be uncovered. When the quantity of serum is considerable, it may commonly be discovered by placing one hand upon the front part of the ribs, near the sternum, and striking with some force near the back bone with the other; and if an undulation is perceived in one side of the chest, and not in the other, the seat of the disease is thereby obvious. But when the quantity of fluid is not great, this trial is not to be trusted. In this case, a person standing behind the patient, upon a chair, should be directed to take a firm hold of the upper part of the body, and to swing it repeatedly, with sudden jerks, from one side to the other; and if water is contained in the chest, it will be found to undulate, and create a noise.

In long-continued collections of serum, the seat of it may sometimes be discovered by its being more prominent than the rest of the chest.

When the disease is in the membrane of the heart, nearly the same symptoms take place as when in other parts of the chest. But in this case, it is observed that the patient complains chiefly of the middle and left side of the

chest; and it may be mentioned as a characteristic of this shape of the disease, that a firm undulatory motion is perceived between the third, fourth, and fifth ribs, on every pulsation of the heart.

The above are the symptoms of serum or water in the chest. The variations from these symptoms in other collections, are as follows:

When blood is collected in large quantities in any part of the chest, the breathing becomes oppressed, and the motion of the heart and arteries feeble and irregular. These, indeed, are symptoms which occur in every collection seated in the chest; but they arrive at a greater and more distressful height from blood, than from any other fluid. The other symptoms are similar to the dropsy, above described, and need not be repeated.

Blood may be effused into the cavity of the chest by wounds, splinters of fractured ribs, eating ulcers, or they may be ruptured by any violent exertion, particularly in coughing.

In collections of blood, a quantity of it is often brought up in coughing, which sometimes affords relief. But when the action of the heart and lungs become impeded by it, attempts should be made to draw it away by tapping. When the blood is found to be coagulated, so as not to pass off by a perforation, the case is difficult; and, perhaps, it would be best to trust its being absorbed, or coughed up; or it may be attempted to be discharged by injecting warm water, so as to dissolve the coagulated blood, sufficient to allow it to pass.

In empyema, or collection of pus in the chest, the marks of oppression, &c., are very similar to the dropsical affection; but we are enabled to judge of the presence of this disease by its cause and the accompanying circumstances.

It may be laid down as a fixed principle, that inflammation is a necessary forerunner of purulency; so that a collection of pus in the chest must be preceded by an inflammation of some of the parts. When, therefore, the symptoms of a fluid in the chest have not been preceded by inflammation, we conclude that they are not induced by purulent matter. But when a patient has previously suffered an attack of the pleurisy, inflammation of the lungs, or any other part of the chest; if he has for some time complained of a fixed pain in some part of the chest, attended with heat, a quick pulse, and other symptoms, and is at last seized with oppressive respiration; an inclination to sit in an erect posture; with a total inability to lie on the sound side; a constant tickling cough; frequent rigors or shiverings; and especially if these symptoms are accompanied with an enlargement of the affected, or with a soft fulness of the part, in which the pain was seated; we may conclude with much certainty that a large collection of matter has formed.

The existence of these collections in the chest being ascertained, and their seat discovered; and if the medicine employed in the cure shall fail; and if it is evident that the patient must die if the operation is delayed, it ought certainly to be advised without further delay. Tapping of the chest is no doubt an important operation, and ought not to be advised but in real danger. But there should be no hesitation in resorting to it, when symptoms are hazardous, and can be removed by no other means; and the method of doing it, is this:

The patient should be laid in a horizontal posture, with the side in which the perforation is to be made laid over the bed; when in this situation, the skin upon the side should be pulled upward by an assistant, and held in that situation during the operation; and the surgeon should now, with a scalpel, make an incision two inches in length between the sixth and seventh ribs, in the direction of these bones, and at an equal distance between the sternum and back bone, taking care to avoid the under edge of the upper rib, on account of the blood vessels running in its groove. The length of the incision may be shortened as the knife passes through the rib muscles, to an inch in

length. On the pleura being laid bare, it should be slowly and cautiously divided, in order to avoid all risk of wounding the lungs, lest they should, at this place, happen to adhere. If they do not adhere, the water, or matter, will rush out with much force, as soon as an opening is made in the pleura; but if the pleura adhere to the lungs at this place, the incision must either be carried forward an inch or two nearer the sternum, or another opening will be required, either an inch or two higher or lower in the chest. As soon as the contents are found to flow, a silver tube should be introduced at the opening, by which the discharge will be more easily completed, and more readily stopped, if found necessary, by the patient becoming faint. By doing it in this manner, atmospheric air is prevented from finding access to the cavity of the chest.

When the water collected is not in any great quantity, it may commonly be drawn off at once; but as, from the structure of the chest, we cannot use compression, when much water or matter is collected, partial evacuations ought to be made, at longer or shorter intervals, according to circumstances. For this purpose, and in order to regulate the discharge, the tube should be secured by a ribbon or cord fastened to it, and then tied round the body, and stopped from time to time with a cork. A pledget of emollient ointment should be laid over the wound, and the whole being secured with a napkin and bandage, the patient should be laid to rest. After a suitable delay of a day or two, an additional quantity may be drawn off; and by thus taking it away gradually all risk of injury may be avoided.

In this manner any quantity of matter may be drawn from the chest with safety: and the patient being now relieved from the great distress under which he labored, the tube may be withdrawn, proper means being at the same time employed for preventing a relapse of the disease.

When both sides are affected, and the serum is collected in both cavities of the chest, it cannot all be drawn off by one operation. In this case, therefore, after being drawn off from one side, the operation should be repeated on the other; but some risk might occur from perforating it in both sides nearly at the same time, by the external air getting access at once to both cavities of the chest; for, with the utmost caution, it is impossible altogether to prevent the air from finding access, either by the wound or tube, to the surface of the lungs: and if both cavities should at the same time be filled with air, the lungs would be as much oppressed as they were before with the water. Before proceeding to the operation on the other side, therefore, the air received in the first opening should be expelled as much as possible, which may be done in this way: immediately after the tube is withdrawn, let the patient draw his lungs full of air. This will expel a considerable part of what was collected between the pleura and the lungs, by the incision; and if the skin, which was retracted before the operation, be instantly drawn over the sore and pressed down by an assistant during expiration, all access will thus be prevented to the external air; and by this being frequently repeated, almost all the air thus collected, will be expelled; after which the skin must be drawn over the wound, and with dressings, the incision will close up without further trouble. Air may also be drawn from the chest, by means of an exhausting syringe.

Air collected in the cavity of the chest may not only prove hurtful, by impeding the motion of the lungs, but it must likewise do harm by the tendency to inflame which it creates in parts naturally secluded from the air. This circumstance, therefore, merits particular attention.

When blood is collected in the chest, produced by a ruptured blood vessel, from a fractured bone, or some extraneous body pressing into it, the incision should be made as near the part affected as possible, that the opening may serve not only for discharging the blood, but for extracting such portions of bone as are found to be detached, or any foreign bodies that may be met with.

And again, when a wound made with a sharp-pointed instrument is the cause of the collection, it will generally be sufficient merely to enlarge the wound if necessary.

When pus is collected in the chest, or abscesses formed, it may be remarked that, when the seat of an abscess is pointed out, either by a long continuance of pain in any one point, or by matter being distinguished between two of the ribs, that this is far the best direction for the place of incision. But when no such mark is observable, the place advised in the general direction is the most proper.

In abscesses in these parts, the matter is commonly first formed in the substance of the lungs, and afterward discharged into one or other of the cavities of the chest. It sometimes happens, however, that large quantities of pus, form between the pleura and surface of the lungs, without any apparent affection of that organ; and seem to proceed from an inflamed state of the surface of the pleura. These collections, however, continue long without producing ulceration; and when ulceration has taken place, the discharge of matter that succeeds to the operation of tapping, generally continues for a length of time.

In this disease medicines should be used for cleansing the system, and to prevent the collection in the chest, otherwise the cure will be tedious, if at all accomplished.

Air, collected in either of the cavities of the chest, excites the same symptoms of oppression on the lungs and heart, as those arising from water, blood, or matter; its removal, therefore, is equally necessary.

Air may pass into the chest from a rupture of the investing membrane of the lungs, which may occur in coughing, &c.; or from an erosion of the surface of the lungs by ulceration; or by wounds penetrating the lungs; or from the point of a fractured rib, lacerating the lungs, which is the most frequent cause.

The symptoms produced by effused air in the chest, differ only from those of water in their arriving more quickly to an alarming height; instances have occurred of death being induced in the space of a few hours, from the fracture of a rib, merely by air collecting in large quantities between the pleura and the lungs. In some—perhaps in the greatest proportion of all that occur, along with this collection of air in the chest, the cellular substance of the breast becomes inflated; and if means are not employed to prevent it, the air insinuates through every part of the body. It is truly astonishing to observe how quickly a fractured rib, when it wounds the surface of the lungs, will in some instances induce the most alarming symptoms. The patient at first complains of a tightness in the chest, attended with oppression in breathing, along with pain in the parts chiefly affected. This difficult respiration becomes more distressful. The patient cannot breathe in a recumbent posture, and is always most comfortable when standing erect and leaning somewhat forward; the face becomes flushed and swelled; the pulse is commonly feeble, and at last it becomes irregular; the extremities become cold, and if relief is not obtained, the patient is at last carried off with every mark of suffocation.

Windy swellings of the external parts of the chest sometimes take place here, which may be easily distinguished from watery effusions by the crackling noise produced on pressure.

The practice I would incline to follow is this: In the first place, make several incisions in the course of the swelling, each half an inch in length, and of such a depth as to pass entirely through the skin into the cellular membrane; and if these do not afford relief, which, however, they frequently do, proceed immediately to perforate the cavity of the chest in the manner I have advised, as near as possible to the injured part, if this be not near the back

bone; in which case the perforation should be made in the most depending part of the chest, as I have advised in collections of serum, &c.

TAPPING OF THE ABDOMEN.

It is the effect of various diseases to produce collections of fluids in the cavity of the abdomen. Commonly these collections can be removed by internal medicines, particularly if taken in due time; but in some cases, from the pressure of the accumulated fluid upon the bowels, we are obliged to employ the operation of tapping.

There is naturally secreted in the cavity of the abdomen, a serous exhalation, for the purpose of lubricating and keeping moist the surface of the intestines. Various causes may occur to produce a morbid increase of this secretion; and whenever the quantity collected in the abdomen is large, it constitutes dropsy in the abdomen.

This variety of dropsy often accompanies a general disease of the system, being frequently combined with swelling of the lower extremities. But in some instances it is local, and is evidently induced by compression of the lymphatics: most frequently by scirrhus swellings of some of the viscera, commonly an enlarged state of the liver.

The presence of a fluid in the cavity of the abdomen, is known by the swelling that takes place; by a sense of tightness all over the abdomen; by the breathing being difficult and laborious, when the patient is in a horizontal posture; and by a sense of fluctuation being communicated to the fingers, placed on one side of the abdomen, when it is forcibly struck on the other. A concurrence of these circumstances will always, to a discerning practitioner, point out the real nature of the disease. But a further confirmation is obtained of it when the patient complains of thirst, a dry skin, scarcity of urine, and other symptoms of dropsy.

When the swelling is found to extend equally over the abdomen, the serum is commonly diffused among the different viscera, and contained within the lining membrane only. It sometimes happens, however, that it is collected in different bags, or perhaps in one or both the ovaria; in which case the ovarian tumor is not commonly so equal, nor the fluctuation so distinctly perceived, as when the water flows freely through the whole cavity. This circumstance of fluctuation depends also on the consistence of the fluid; for we sometimes find it thick and gelatinous, whilst most frequently it is thin and watery.

Diuretics and other evacuants in the cure of local dropsical swellings, rarely prove useful, unless the patient be strong and of good constitution. When this is the case, it may be useful to give diuretics and drastic purges, as gamboge, in small doses, which will often bring away immense quantities of water; but it can be advisable only in few cases. The principal object, therefore, to be kept in view here, is to discharge the water collected in the abdomen by tapping as soon as its existence is ascertained, and it resists the operation of medicine; while the most effectual remedies should, in the mean time, be employed for preventing a return of the disease. This is sometimes impracticable; but cures may often be accomplished, and would probably happen more frequently if the fluid collected in the abdominal cavity was more easily discharged. In general this is delayed too long, for the bowels must surely suffer greatly by being soaked long in water, as usually happens in dropsy of the abdomen before the operation is advised. This, too, is the more improper, as the operation of tapping is, in itself, exceedingly simple. It excites little pain; and any danger attending it does not proceed so much from the nature of the operation, as from the constitution being in general much debilitated by the long continuance of the disease, before it is perform-

ed; which renders an incision, in extreme cases, liable to mortification from the cold and inactive state of the parts. Early tapping, however, is never necessarily attended with danger. A large dropsical collection should never be discharged suddenly; as fainting and even death may ensue. This, however, may be in a great measure guarded against by applying bandages tightly and equally over the whole abdomen. These should be drawn tighter as the contents are emptying, in order to support the bowels with equal pressure. When this is properly done, almost any quantity of water that the abdomen may contain, may with safety be drawn off. The bandages should be continued several days after the operation.

The instruments for tapping generally used, are the trochar, a round instrument, with a three-edged point; and the large seton lancet.

In performing the operation, the safest and best place seems to be at a point lying at nearly an equal distance between the navel and the centre of the spine of the hip bone. No large blood vessels can be wounded here; and the coverings of the parts in this place are somewhat fleshy, and heal more readily. None of the intestines can in this place be readily injured; and when the patient is laid in a horizontal posture, which ought always to be done during the operation, this point will be found to be more depending than any other.

The place for the incision being determined on, it should be marked, and the bandages applied, leaving an opening for the incision. These bandages, or straps, should be confined with buckles, that they may be drawn up when necessary. The patient being laid in a horizontal posture, with his head elevated, and his side lying over the edge of a bed, the surgeon, if he use the trochar, will take it in his right hand, and fixing the head of the stillette in the palm of his hand, while his fore-finger directs the point of the instrument, he is now to push it forward till he finds that the end of the canula, or tube is through the muscles, and lodged in the cavity of the abdomen. The stillette is now to be withdrawn and the tube allowed to remain as long as the discharge continues, care being taken to pull the bandage gradually tighter as the water flows off: or, if the patient, notwithstanding this precaution, shall become languid, a total stop should be put to the discharge for a few minutes. If a lancet is used, the incision should be carefully made, by repeated strokes, till the opening is sufficiently large and the matter flows freely; a silver tube should then be introduced, with a perpendicular wing around it to prevent its slipping into the abdomen where it should be confined with adhesive plaster.

The discharge is sometimes stopped before the swelling is much diminished, by portions of the epiploom or intestines stopping up the end of the tube; this can be removed with a blunt probe. But this early cessation of the discharge may take place in consequence of the serum being collected in particular bags, having no communication, by which only one of them is emptied; in such circumstances, the tube must be withdrawn, and the wound being dressed with a pledget of any simple ointment, the operation may be renewed, either immediately or on the following day, on the opposite side of the abdomen, or in the most depending part of it.

When the dropsical collection is large, and it is expected that it will collect again, after an evacuation, the tube may be suffered to remain tightly corked and secured against the entrance of the air, for a few days, and the water drawn off as it collects.

Dropsical swellings of the ovaria exhibit nearly the same appearances with bag dropsies of any other kind: though it sometimes attains to an enormous size, and is filled with folds or lattices. This disease of the ovaria comes on more gradually than other dropsies, and does not appear to injure the constitution so much, the water not being in contact with the intestines. The pro-

priety of drawing off the contents by tapping, is equally as obvious in this as any other shape of the disease.

The serum being all drawn off, and the opening dressed in the manner before mentioned, the bandage must still be continued sufficiently tight for preventing those distressful feelings which the sudden discharge of it would otherwise be sure to induce: and there is reason to think that the support which the bandage affords to the weakened parts, may have some effect in preventing a return of the disease; but when, notwithstanding this, and such internal remedies as are employed, the water is found again to collect, the operation requires to be repeated whenever the swelling becomes very large.

Dropsy is, perhaps, the most frequent variety of tumor to which the abdomen is liable; but in some instances, instead of water, tumors of the abdomen are found to contain air, constituting a disease, commonly termed tympanites.

CUTTING OUT A CANCEROUS BREAST.

Cancer has been known to attack almost every part of the body; but we meet with it more frequently in the breasts of women, than in almost any other part.

In another part of this work, I have entered fully into the consideration of cancer and its medical treatments.

A real cancer is a formidable disease; wherever it is seated, consequences are to be dreaded; but more especially, when fixed on one or both of the breasts. Various causes have been assigned for cancer proving more malignant in this situation than in others; but the obvious reason of it is, that cancers, being very commonly seated in the glands, and the breast being entirely glandular, cancer is necessarily more apt to form in it than in parts not so extensive.

In every surgical operation, it should be an established maxim, to save as much sound skin as possible. Such portions of the common integuments as are diseased, or that adhere firmly to the parts below, ought certainly to be taken away; but it can never be proper to remove more than this, for it is now universally known, that the true skin is never regenerated. This, however, is not the only objection to an extensive removal of the skin, in every operation, where much of it is destroyed, the wound that remains is necessarily much more extensive, and the cure, therefore, more tedious, than when little or perhaps no skin has been taken away. Indeed, this is so much the case, that in operations where no skin has been removed, cures will sometimes be accomplished in a few days, which, by the removal of much skin, in the usual way of performing the same operation, would be protracted to many weeks or months.

In proceeding to the operation, the patient must be placed upon a table; in this manner she is more easily secured; faintings are less apt to occur, and the surgeon proceeds with ease through every part of the operation.

In the first place, I shall suppose the operation to be performed for a schirrus of the breast, or mamma, while the skin is still sound, and without adhering to the parts beneath. In these circumstances, an incision should be made with a scalpel, through the skin and cellular substance, from one extremity of the tumor to the other; taking care to direct the scalpel so that it may avoid the nipple, by carrying it an inch or so to one side of it. When the disease has extended, as it sometimes does, beyond the mamma, towards the breast bone, as this commonly throws the longest diameter of the tumor across the body, this external incision should be made in a direction corres-

ponding to the length of the tumor, by making it to commence at one side of the mamma, and terminate at the other; but when the mamma alone is diseased, the external incision should run in a perpendicular direction, commencing at the upper part of the tumor, and finishing at the most depending point of it. By this means, any matter that may form during the cure, is freely discharged; which does not happen when the incision runs in a transverse direction, unless the lower portion of the integuments is afterwards divided from above, downward; which in such cases, should always be done; for, although in some instances, a cure is easily obtained, even where this precaution is not kept in view; yet, in general, some inconvenience would ensue from a neglect of it.

The skin and cellular substance being thus freely divided, are now to be separated from the diseased parts below by a slow and steady dissection; and this being accomplished, the integuments should be kept asunder by assistants, till all the glandular part of the breast is dissected from the pectoral muscle, and other parts with which they are connected.

On the mamma, or breast, being removed, the operator should examine with much accuracy, not only the surface of the sore, but the parts beneath the edges of the divided skin; and if any indurated glands are discovered, they should all be removed. In this part of the operation, much care and attention is requisite; for unless all the diseased glands are removed, no advantage will be derived from it.

I have desired that the whole glandular part of the mamma should be removed. Even where a small portion of it only is diseased, the whole should in general be taken away; for no good purpose can be answered by a portion of it being left; and in many instances, where this had been done, mischief ensues from the disease making its appearance again in some parts of the glands which remain. When, indeed, it is found that a single loose gland only is diseased, it may be taken out without injuring the rest of the breast; but whenever the disease is extensive, the whole mamma should be removed.

The next step in the operation is, to secure the divided arteries; and it should always be done with a tenaculum, or a small sharp pointed hook. As the arteries of the mamma are frequently small and numerous, much attention is necessary to discover them. All the coagulated blood should be effectually cleared away with a sponge and warm water; and if the patient is faint a glass of wine or some other cordial should be exhibited; by which means, small branches of arteries are discovered, which would otherwise escape notice, and which, if neglected, might induce much hazard and distress.

The blood vessels being thus secured, and the surface of the sore cleared of blood, the divided integuments should be brought together; and in order to secure them with accuracy in their situation, ligatures should be introduced at those points where they are most likely to answer the purpose. Slips of adhesive plaster may sometimes be employed instead of ligatures, in slight cases.

In securing the integuments in this manner, care must be taken to leave all the ligatures of the arteries hanging an inch or two out of the wound, so that they may be withdrawn in a few days; which in general may be easily and safely done when they have been applied with the tenaculum.

In this manner, when no portion of the integuments has been removed, as the whole sore will be covered with skin, a cure will be obtained by a process, which surgeons in general have termed, the *first intention*; that is, without the formation of matter.

But it does not often happen, that the operation is advised, whilst this mode of practising is admissible. In general, before a practitioner recommends amputation of a breast, and still more frequently before a patient consents to it, a considerable portion of the external integuments are so much diseased as to render it necessary to remove them along with the glandular part of the

mamma; or if the skin is not actually diseased, it commonly adheres so much to the most prominent part of the breast, that it cannot be separated from it. In either of these circumstances, some portion of the skin must be removed along with the mamma; and the easiest method of doing it is this: a longitudinal incision should be made in the manner I have advised, through such parts of the integuments as are perfectly sound, while that portion of the skin that is diseased, or which adheres firmly to the glandular parts of the breast, should be separated from the sound skin by a circular or oblong incision, with which the longitudinal cut ought to communicate; and this being done, the operation is to be finished by dissecting off every part that is indurated, along with that portion of the skin which in this manner has been surrounded with an incision, such as I have mentioned.

The sore that remains after the operation, should be treated with the mildest dressings. When any hæmorrhagy takes place from the surface of the sore, and is not removed, on the larger arteries being secured with ligatures, dry lint should be applied for the first dressing; but for all the after-dressings, lint covered with any emollient ointment should be preferred. Mild emollients never give pain, which dry lint is apt to excite.

I have hitherto been supposing that the disease occupies the mamma only; but the lymphatics leading from the breast to the arm-pit, are also often indurated, and likewise the glands in the arm-pit itself. In some instances, too, a number of diseased glands are found to run from the breast to the collar bone, and to spread in considerable clusters along both the upper and under edges of that bone. In such circumstances, the amputation of the mamma itself must be managed in the manner I have already advised; but besides this, an incision should be made through the skin and cellular substance, from the further extremity of every cluster of hardened glands, and made to terminate in the principal cut produced by the removal of the mamma. Thus, when the glands in the arm-pit are enlarged, although they might frequently be pulled out, either separately or connected together, by a hook insinuated below the sound skin, at the sore on the breast; yet it answers the purpose better, to lay the glands first bare by an incision, in the manner I have advised, and then to dissect them cautiously out with the scalpel.

In like manner, when a cluster of diseased glands is found to extend towards the collar bone, or in any other direction, after the integuments have been freely divided, the glands themselves should be totally removed; and both here and in similar affections in the arm-pit, the divided integuments should be brought together and retained in their situation, either by means of compression, or, when this is not sufficient, by the introduction of one or more sutures.

TRACHEOTOMY, OR OPENING THE WINDPIPE.

When respiration becomes much obstructed, and endangers the life of the patient, and when this appears to proceed from a local affection, or obstruction, of the upper part of the windpipe, an operation may become necessary for relief.

This operation has in general been supposed to be of a more dangerous nature than it really is; and this has, no doubt, often prevented it, when it might have saved life.

The causes that may render an opening of the windpipe necessary, are;

1. Spasmodic affections of the windpipe, when they threaten suffocation: this may happen from catarrh, or acid mucus; or from hard substances passing into the windpipe, which, even though their size would not choke the passage, may, by their irritation, cause a spasmodic contraction.

2. Tumors that are firm, particularly those that are of a schirrous and fleshy kind, even when seated externally, have been known to compress the windpipe so much as almost entirely to obstruct respiration.

3. Inflammation of the tongue may arrive at such a height as entirely to obstruct the passage to the fauces; and this most frequently is the effect of mercurial irritation, or salivation, which, when carried far, induces such a tumefied state of the glands of the mouth and throat, as to produce suffocation.

4. Swellings of the almonds of the ears and contiguous parts, may become so large as to obstruct respiration; thereby rendering an operation necessary.

When, from any of these, or other apparent causes, breathing becomes so much obstructed as to endanger the patient's existence, and other means failing, the operation of opening the windpipe should be immediately advised; and the method of performing it is this:

[The patient being laid on a table, with his head supported by a pillow, and thrown moderately backwards, the surgeon feels for the membranous place situated between the cartilages of the upper part of the windpipe; he makes a perpendicular incision about an inch in length down to the membranes between the cartilages. At this time all the bleeding vessels must be secured, then cut through the membrane and remove the extraneous substance by forceps, taking care that no parts are injured more than is necessary. If the opening is made for a disease, it must remain open until the disease is removed: it may then be allowed to heal.

There may substances get into the œsophagus which require removing, and it must be frequently done in a hurry or the patient will suffocate. If it will do to force the substance into the stomach, you may do it with any blunt instrument that will bend easy: whale-bone is the best material for this use, the substances can often be removed by getting hold with forceps or some other such instrument and pulling it out through the mouth.]

ANEURISM.

[A *true* aneurism is a pulsating tumor, caused by the dilatation of all the coats of an artery. A *false aneurism* occurs when an artery is wounded to an extent sufficient to admit an extravasation of blood through the cellular tissue. The arteries most subject to aneurism are the aorta, subclavian, carotid, brachial, axillary, femoral, popliteal, and tibial. Of all, the popliteal is most liable.

The patient notices the swelling but little on its first appearance; there is little or no pain attending it, and by making a slight pressure upon it with the hand it will disappear, but on removing the pressure the tumor again makes its appearance. As the tumor enlarges, the skin over the affected part turns livid and will often crack; finally ulceration takes place and proceeds until it reaches the sac, when at intervals the blood will escape through the ulceration, and will increase rapidly if not checked by some form of treatment. Coagulated blood may occasionally stop the orifice for a short time, when the blood will again force itself through.

A large aneurismal tumor pressing upon a bone for some time, will produce absorption. I once saw an aneurism of the thoracic aorta, occasion the absorption of the fourth, fifth, and sixth ribs; and it protruded out upon the back nearly the size of a person's head. I again saw the sternum nearly absorbed by the same kind of aneurism.

TREATMENT.—The patient should be kept, as much as possible, in a recumbent position. Should there be much inflammation, bleeding will be

necessary, and if the patient is of a full habit, he must be treated with remedies that will produce debilitating effects, in order to reduce the force of the circulation; this will often have a tendency to coagulate the blood in the sac and thereby check the force of the disease. Spare diet should be rigidly enforced. Digitalis is often used with benefit.

There are two surgical methods for the cure of aneurism, which I shall here describe, viz: compression and the ligature. In compression, have a piece of wood fitted snug to the tumor, and secured by straps; this will prevent the tumor from enlarging, and thereby effect a cure. This compress should be lined with leather in order to prevent irritation, and should be worn for a long time.

In applying the ligature, the surgeon should cut down to the artery, just above the sac, pass the aneurismal needle, armed with a round, smooth, strong thread, around a sound part of the artery, and tie it firmly. Care must be taken that nothing more than the artery is involved in the ligature. Dress the wound, lay the patient in bed, and restrict him to a low diet. Most generally the coagulated blood will be absorbed, and a cure effected; but sometimes the tumor will slough, or secondary hæmorrhage take place and destroy the patient.

I once saw a surgeon cut the peritoneum in ligaturing the common iliac artery, for an aneurism of the femoral artery, situated high up: in this case the tumor sloughed, peritoneal inflammation set in, and the patient died. If this operation is performed in season, and is well done, it generally proves successful.

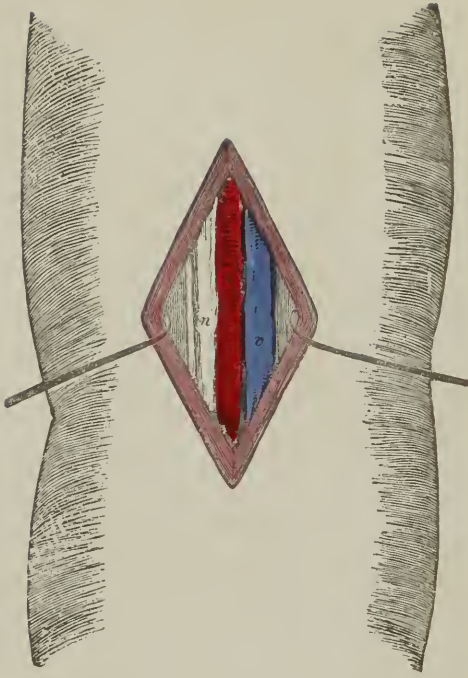
Aneurism from Anastomosis.—This is a slight pulsating tumor, caused by a congeries of small arteries and veins. The tumor is often situated about the face; any part of the body is subject to it. It arises from blows or some violent injury; it is frequently congenital. It has a very red appearance from the commencement, and often increases in growth very rapidly. The most proper treatment for this kind of aneurism, is the use of caustic in some form. I have seen it cured quickly, by passing small needles, red hot, through the tumor several times. This method will destroy the vitality of the tumor, and in a little time it will slough off. I have treated a number of cases of aneurism in the above manner with complete success.]

DIRECTIONS FOR TAKING UP THE PRINCIPAL ARTERIES.

THE CAROTID ARTERY.

[This artery, in its passage from the aorta to the head, runs by the side of the trachea. The internal jugular vein is situated on its outer side; behind it lies the par vagum and great sympathetic nerve; it is covered at the lower part of the neck by the sterno-clido-mastoid muscle, and at the upper part by the skin, a thin muscle, and cellular tissue.

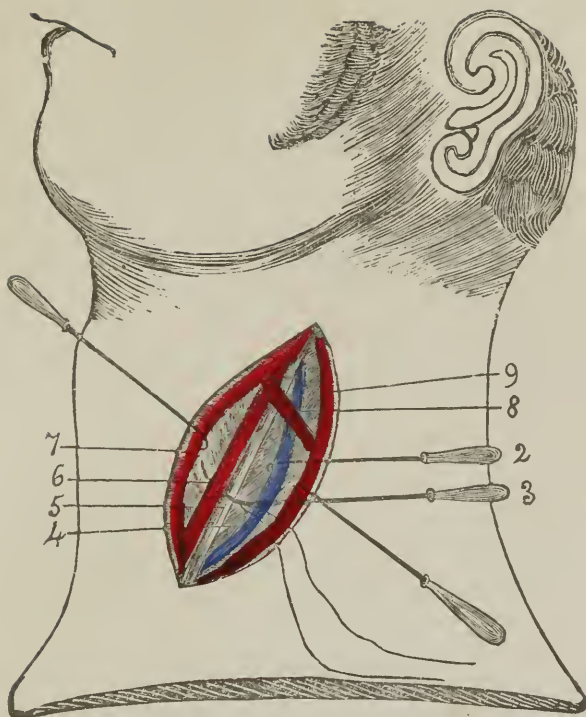
If the surgeon can have his own choice where he will operate, he should tie the artery about half way between the upper part of the trachea and the sternum. The incision should begin near the thyroid cartilage, and continue down about two or three inches, and about half an inch from the trachea, cutting carefully until you come to the sheath of the vessel. Let an assistant hold the parts open, and if there is any blood in the wound, sponge it out clean: then proceed to open the sheath. The vein will be seen on the outside of the artery, and the nerve behind it. The nerve should be disturbed as little as possible. The aneurismal needle, being previously prepared with a good, smooth, strong ligature, should now be passed around the artery, and the ligature tied firmly, leaving the ends hanging out of the wound. This being done, the edges of the wound should be brought together by



The annexed Cut represents the Operation for
LIGATURING THE BRACHIAL ARTERY.

-
- v* The Brachial Vein.
 - a* The Brachial Artery.
 - n* Two accompanying Nerves.

Two hooks are also represented, holding the wound apart.



The annexed Cut represents the Operation for
LIGATURING THE CAROTID ARTERY.

- ~~~~~
- 2 An Instrument holding the jugular vein away from the nerve and artery.
 - 3 The Aneurismal Needle, (with a ligature in the eye,) passing over the vein and nerve and under the carotid artery.
 - 4 Space between the vein and nerve.
 - 5 Par Vagum nerve
 - 6 Carotid Artery.
 - 7 Sterno Thyroideus muscle
 - 8 Omo Hyoideus muscle.
 - 9 Sterno Cleido Mastoideus muscle.
- Two hooks are also represented, holding the wound apart.

sutures and adhesive straps, the patient placed in a recumbent posture, and his general health attended to.

AXILLARY ARTERY.

This artery being surrounded by the axillary plexus of nerves, and having many small arteries passing off from it and running to the glands and muscles about the arm-pit, and the axillary veins being very numerous renders the operation rather difficult.

To perform the operation, however, first raise the patient's arm and make an incision three inches long through the integuments, exactly under and towards the head of the os humeri. The axillary vein will first appear, then the median nerve, behind which lays the artery. The artery should be raised a little, cleared from the surrounding parts, and the ligature passed around it.

Should there be any small arteries divided in this operation, they must be secured. The edges of the wound may now be brought together and secured by sutures and bandages. Keep the patient quiet, and if his system is in a healthy condition, the wound will heal by the first intention.

BRACHIAL ARTERY.

This artery is situated between the inner edges of the biceps flexor cubiti and triceps extensor cubiti muscles. It assumes its name from the axillary artery at the anterior edge of the pectoralis major, and runs along near the skin and fascia, down to the bend of the arm. On the inner side of the artery is the median nerve, and near it is the basilican vein. The pulsations of the artery are easily felt, and may be considered one of the guides to find it.

In taking up this artery, the incision should be made two or three inches above the elbow-joint, near the inner condyle of the humerus, carrying it upward, close to the inner edge of the biceps flexor muscle, to the extent of about two or three inches. Unless precaution is used, there is danger of involving the median nerve in the ligature. The surgeon now being sure that all is right, will bring the edges of the wound together, and secure them with adhesive straps and bandages.

It is sometimes the case that this artery divides high up, near the axilla: when this occurs, and it is evident that the difficulty exists in one of the branches, that branch alone should be tied; but if any doubts arise as to the situation of the difficulty, both branches should be tied separately.

ULNAR ARTERY.

This is the largest branch of the brachial. It passes over the inner edge of the ulna, when first given off, soon inclining towards the middle, and there gives off the median artery and a recurrent branch that runs over the elbow-joint. The ulnar artery, passing down between the flexor longus pollicis manis and the flexor carpi ulnaris (the former muscle being towards the thumb, and the latter towards the little finger), over the annular ligament of the wrist, and under the aponeurosis, reaches the base of the metacarpal bone of the little finger, and enters into the formation of the palmar arch. The ulnar nerve passes down on the outside of the artery, or the side towards the little finger. The artery, at the lower extremity, lays quite superficial, being covered at the wrist with skin and fascia only.

In cutting for this artery to ligature the upper part, it is necessary to make the incision at the upper extremity of the ulna, and near the inner edge (towards the radius), and continue it in a straight direction down-

ward ; immediately under the skin and fascia is situated the palmaris longus and the inner edge of the flexor digitorum sublimis ; on drawing these muscles a little to one side the artery will be exposed, when the ligature can easily be applied.

RADIAL ARTERY.

This artery is smaller than the ulna, and more superficial in its course, producing the pulsation so readily felt at the wrist. It is given off from the brachial, near the fold of the arm, and descends close along under the inner edge of the supinator radii longus, and continues its course along the fore part of the radius, accompanied by a branch of the spiral nerve on its outer side, till reaching the lower extremity of that bone, it divides into two branches ; the largest of which enters into the formation of the deep-seated palmar arch.

To take up this artery, the incision should be made obliquely downward and outward, about three inches in length, from a little below the bend of the arm, and near the middle. On reaching the inner edge of the supinator radii longus, and raising it up, the artery will be exposed. The ligature can then be applied in the usual manner, using caution not to involve or injure the vein which lays close to the artery on the outer side.

I have generally found it more difficult to take up either of the two last-mentioned arteries than I have to take up the femoral artery, in consequence of the fascia that covers the muscles being very firm and freely dispersed through them ; and when they are divided by accident, or otherwise, they will retreat in their sheaths, and it frequently becomes necessary to take them up above the injury.

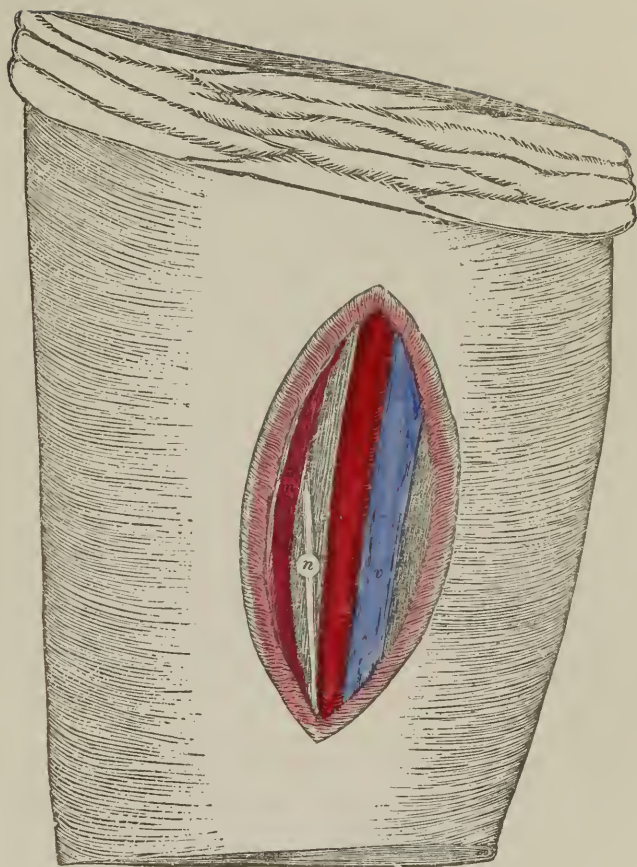
EXTERNAL ILIAC ARTERY.

To ligature this artery, the incision should commence about one inch above Poupart's ligament, and extended three or four inches toward the pelvis, cutting down through the common integuments and the tendons of the external oblique muscle, then raise with the forceps the internus oblique and transversalis muscles, and divide them. The deep fascia will be exposed, which should be carefully and gradually cut through, the peritoneum lying immediately under it. Insert the end of the fore-finger of the left hand between the fascia and peritoneum, and with the right hand introduce the probe-pointed bistoury, and open the orifice as much as is necessary, when, keeping the peritoneum free from the psoas muscle and artery, the aneurismal needle can be passed with little difficulty ; caution should be taken that the ureters, veins, or nerves are not involved in the ligature or otherwise injured. Should any artery be cut in the operation, it must be secured.

FEMORAL ARTERY.

The most preferable point for taking up this artery, is at the middle part of the thigh. It is here covered by the skin, cellular tissue, fascia lata, and the inner edge of the sartorius muscle.

To perform the operation, the patient should be laid upon his back, and in order to relax the muscles, the legs should be somewhat flexed. Commence the incision two or three inches below Poupart's ligament, and continue it downward and inward to an extent that will afford sufficient room, cutting through the fascia lata down to the inner edge of the sartorius. An assistant may now draw the muscle and common integuments to one side, and expose the artery. The operator may now open the sheath, and pass the ligature, using great caution that the femoral vein or nerves are not injured or included.



The above Cut represents the Operation for
LIGATURING THE FEMORAL ARTERY.

-
- v* The Femoral Vein.
 - a* The Femoral Artery.
 - n* Anterior Crural Nerve.
 - m* Sartorius Muscle, drawn one side in order to expose the vessels.

There is a large branch given off by the femoral artery just at the point where this incision commences, which, either through accident or ignorance, has been taken up for the femoral, and by the same unfortunate means this occurrence might again take place; therefore, it is important that the operator be on his guard.

When the ligature is properly passed around the artery, the knot should be drawn tight, letting the ends hang out of the incision. Close the wound and secure it by adhesive straps; apply light compress and bandage, and place the patient quietly in bed.

POPLITEAL ARTERY.

This artery is situated under the knee, between the condyles of the femur and the heads of the gastrocnemius muscles. There is a number of small arteries passing off at this point from the popliteal, and the popliteal vein and nerve are here in close contiguity. It, therefore, requires care on the part of the surgeon, when cutting for this artery, that no vein or nerve should be injured, nor any thing but the artery included in the ligature.

To take up this artery, the patient should be placed in a horizontal position, with his back up, his knee at the edge of the bed, and the leg supported by an assistant. Then, by making an incision about two inches long exactly between the condyles of the femur, through the integuments and fascia, the nerve will be brought into view, and directly under it the large vein; on drawing the integuments and fascia to one side, the artery will be sufficiently exposed to allow the ligature to be passed, which is now to be done and tied firmly. The wound being necessarily quite deep, it is most convenient to use the ends of the fingers in drawing down the knot.

ANTERIOR TIBIAL ARTERY.

This artery lies on the anterior surface of the interosseous ligament, between the tibia and fibula.

To take up this artery at the middle of the leg, the incision should commence a little below the upper extremity of the tibia, on the outer side, and close to the bone; cutting through the common integuments down to the tibialis anticus and extensor longus, and dividing these muscles the artery will be exposed. Pass the ligature around firmly, and close the wound with adhesive straps.

POSTERIOR TIBIAL ARTERY.

This artery, being the continued trunk of the popliteal, is covered by a strong aponeurosis, by the plantaris and gastrocnemius muscles; as it descends it advances a little forward and passes down between the tendo-Achillis and inner ankle: it is accompanied by a vein on each side and a nerve behind.

In taking up this artery at the upper part, the incision should be made as high as the condyles of the femur, extending down the calf of the leg, directly in the middle, about three inches, cutting through the common integuments and gastrocnemius extensus, raise the soleus muscle and cut through the aponeurosis, and the artery will be exposed. The ligature will be passed in the usual manner, using great precaution that the nerve or vein is not involved; bring the edges of the wound together, and secure them by adhesive straps.

The lower part of this artery can be more easily taken up as it lays more superficial and the pulsation is very perceptible.

Recapitulatory Remarks.—The causes which render it necessary to take up arteries are very numerous. Among these, aneurism is one of frequent

occurrence. A variety of opinions have been advanced as to the point where an artery should be tied for the cure of aneurism, and some have even doubted the necessity of applying the ligature at all in this case. Some writers upon this subject have recommended the application of pressure above the tumor, then open the sac, turn out the contents, and ligature the point where the artery terminates. Others recommend ligaturing the artery below the sac; by which means the blood would coagulate in the sac, reducing the pressure, and in time, causing the absorption of the blood. This plan has frequently been successful. The most modern and best method, however, is to tie the artery as I have before described.

Arteries are sometimes ligatured for the purpose of arresting disease or stopping their growth. I do not think so much of this operation as some others do; it may possibly, however, do some good. It sometimes becomes necessary to tie an artery in order to remove another disease; for instance, to exsect the parotid gland, the carotid artery must have a ligature placed around it.

Wounds are the most frequent cause for taking up arteries, and they are liable to occur in any part of the body or extremities. When an artery is cut by a sharp instrument, it can generally be taken up at the point where the injury is received; but if it is divided by a blunt or rough instrument, it is most likely to be a lacerated wound, and the artery in this case is torn off, and requires to be ligatured above the wound. In an incised wound, or one produced from a sharp instrument, the blood will flow in a free stream, but in a lacerated or contused wound, the blood, if interrupted, seems to ooze out in a number of places.

It is impossible in this condensed volume, to lay down an exact rule for every thing; but in what I have here stated, the surgeon will find his general guide. He must, however, be a man of judgment and tact, go understandingly at work, and not rush through any operation to show a boldness, for if he do it will often be at the expense of his patient's life; but be careful, giving reason and judgment their full sway. Never cut any where unless it is necessary; but when convinced that it must be done, do it with care and as much ease as possible.

POLYPUS.

[Polypi more frequently occur in the cavity of the nose than any other situation; it is a fibrous or fleshy excrescence, and has its origin in the Schneiderian membrane. There are visibly two kinds; the one being soft, and the other tough. The first is of a pale red color, is not very painful to the touch, and is easily compressed or broken: when broken it will retract within the nostril. The weather, also, has considerable effect upon this kind, the tumor being somewhat larger when moist than when the atmosphere is dry. The tough kind is more vascular than the soft, is painful to the touch, and easily bleeds. It shows somewhat of a cancerous character, and when removed by extracting, it often takes pieces of bone with it, and it generally returns; but an operation by cutting is out of the question, unless a probe can be passed around it from its lower portion to near its neck.

Polypus, in its early stage, produces little or no pain; but as the tumor increases in size it often effects an impediment in the speech, and respiration is not unfrequently disturbed, it becoming necessary to breathe through the mouth entirely; it occasions pain in the head: the nose is sometimes considerably enlarged and disfigured, accompanied by a sensation of great weight in it: finally, the spongy bones of the nose become diseased, and a fetid, bloody matter is discharged from the nostrils.

It is a difficult matter to define the cause of polypus in all cases, but it may be produced by repeated attacks of catarrh, by injuries, or by a vitiated constitution.

CURE.—I believe that the majority of cases may be cured by some escharotic applied to the parts affected. Dr. Beach recommends bay-berry and bloodroot, in fine powder applied to the tumor itself. Lunar caustic is good in the form of a wash or in substance, applied to the affected part. It, however, sometimes becomes necessary to extract or cut them out. To extract a polypus, grasp the tumor as high up as possible, with a pair of strong forceps and pull it away. If much hæmorrhage follow, apply caustic or plug up the nose with a tent. The soft polypus is much more readily cured by extraction than the harder kind.

This complaint requires considerable tact on the part of the physician, and considerable patience on the part of the patient, for the entire cure in any way except by extraction; this is but a minute's work, but in that short time a great amount of harm may be done. The cribriform plate of the ethmoid bone has been torn from its situation by extraction, therefore all means recommended should be used before resorting to an operation.

EXCISIONS OF THE TONSILS.

Enlargement of the tonsils is generally produced by inflammation about the throat, but the more direct cause, is quinsy, hence we have the term "Cynanche Tonsillaris." This affection may become chronic, and in a great measure obstruct the respiratory passages. One or more of the tonsils may be enlarged at the same time.

Excision seems to be the only proper means to effect a quick, and at the same time a radical cure. To perform the operation, the patient should be directed to open his mouth as wide as possible, then with a pair of dressing-forceps, in the left hand, draw the tumor a little out, and with a probe-pointed bistoury, in the right hand, cut it off. No dressing is required, and in a few days it will be well.

There are various kinds of instruments used for this purpose, but I know of none preferable to the forceps and bistoury; whatever instruments may be used, however, it is necessary firmly to secure the patient's head.

DISEASES OF THE SCROTUM, SPERMATIC CORD AND TESTICLES.

VARICOCELE.

This consists in an enlargement and distension of the blood vessels of the spermatic cord and testicles. The enlargement at first is very gradual, but in time they become very much distended, and when full of blood, quite heavy, so much so, that the patient finds it necessary to wear a suspensary bandage, and avoid long walks or standing long at a time. The enlarged veins extend up to the groin, feel quite knotty and crooked, and roll and slide about under the fingers. Varicocele more frequently occurs on the left side than on the right, for the reason that the left spermatic vein runs under the aorta, which, making a pressure upon the vein, impedes the easy return of the blood.

Varicocele may be caused by the pad of a truss pressing too hard upon the bone, thereby preventing the return of the blood. An accumulation of hardened excrements in the upper part of the rectum; blows or bruises in the parts connected; an excess in venery, a relaxed state of the system, violent

running, or jumping from high places, are not unfrequently causes of this complaint.

In the progress of varicocele, violent pain is often experienced, extending up back and occasionally darting down the thighs. After a few hours repose the varicose veins nearly or quite disappear but on a little exercise they again return.

TREATMENT.—Apply, in the first place the suspensary bandage, bathe with cold water, cold lotions and cold shower baths, and if any inflammation exists, leeching may be beneficial. The last resort is an operation, to perform which, various methods have been adopted. The French surgeons compress the veins by means of a screw applied to an instrument something like a vice which produces an adhesion. My own method of operating for this complaint, originated entirely with myself, and I will here describe it. First let the patient walk about, a few hours, then place him in a chair directly in front of me; taking hold of the veins, I draw them as far from the testicle as possible, and with a scalpel make an incision down to the veins; I then apply a ligature to all the enlarged veins and tie it loosely, then pull the veins to the outer surface of the scrotum, cover them up with oiled silk, and place the patient in a recumbent position on his back, that the blood may return easy; the ligature is drawn a little tighter every day or two until it slough through. By this means the veins are destroyed, and the circulation established through other veins.

Dr. Parker performs the operation by drawing the veins from the testicle and passing a long middling-sized needle, armed with a strong linen thread, through the whole entire scrotum and tying it upon the outside; in this way the veins are not exposed to the atmosphere, and at the same time are enclosed in the ligature. He then allows it to remain until the veins become obliterated, or the ligature slough off through the entire mass.

The objection that I have to Dr. P.'s method is this: the surgeon cannot tell exactly what he is including in the ligature. He might involve the *vas deferens* or the *spermatic artery*. To tie the former will destroy the functions of the testicle, and to include the latter will destroy the testicle itself. I therefore, for these reasons, give the preference to my own method of operating.

SCROFULA OF THE TESTICLE.

When this organ becomes affected with scrofula, it enlarges very gradually until it has increased to two or three times its natural size; it then generally begins to soften and suppurate, and a thin, white, watery fluid, mixed with a curdled milk-like matter is discharged. There is little or no pain attending the commencement of this disease, but as it progresses, the testicle becomes irritable and tender to the touch.

A predisposition to scrofula may be considered the most prominent cause of this disease; it may, however be excited by colds, exposure in low damp places, and in children, a neglect of cleanliness has a tendency to it.

Treatment.—In the first place, apply the anodyne wash, spirits camphor, vinegar and water, &c., in order, if possible, to resolve the swelling. Administer internally the anti-mercurial syrup, and keep the bowels free by exhibiting the anti-bilious pills. If the tumor show a disposition to break, it may be lanced; then poultice for a few days and dress with the green salve. This course if persevered in, will soon effect a cure.]

IMPERFORATE ANUS.

[This freak of nature is met with both in the human species and in inferior animals. Although I have never seen a case except in children, but from accounts of different writers upon the subject, I have no doubt that it exists in the lower animals.

It is of the utmost importance that this and other malformations should not remain long unremedied; therefore, one of the earliest duties of the accoucheur after delivery, should be an examination of all the natural outlets of newborn infants.

The place in which the extremity of the rectum, or the anus, ought to be found is entirely closed, and in some instances not a vestige of the intestine appears. The rectum terminates as high up as the promontory of the sacrum; sometimes it finds its way into the vagina, the bladder, or the urethra; and at others, the bowel ends in a sac formed by the lower portion of the rectum. This last is by far the most common, and the rectum terminates so near to the external surface that the tumor can be seen protruding at the point where the imperforation should actually exist. In some cases there is an indentation externally, and this may be liable to deceive the nurse in an examination; in fact, the difficulty in some instances has not been discovered until an attempt was made to administer an enema, and it became apparent that the syringe could not be introduced.

Symptoms.—There having been no discharge from the bowels, the abdomen becomes distended, and the child is constantly making an effort, as if there was an accumulation of hardened feces in the rectum and a difficulty in evacuating it. These symptoms will lead to an examination; when, by introducing a probe it will be suddenly arrested, instead of passing in freely.

The only alternative which can save the child's life, is a surgical operation. I have performed this operation with complete success. I first endeavor to ascertain how far down the rectum extends, then, with a sharp-pointed and curved bistoury, make an incision exactly in the indentation if there be any, if not, then where it should be, and carry it along, following the course of the sacrum, without cutting any more than is absolutely necessary, until the point enters the rectum, when the contents begin to evacuate. I then withdraw the knife, and introduce a bougie that is a little longer than the knife, after which the bowels are freely emptied. The case requires considerable treatment afterwards by introducing different sized bougies, and keeping the anus open until the wound is healed, and at the same time sufficiently open to allow the excrements to pass.

Care must be taken in this operation to follow the exact course of the sacrum, and if a female child cut very close to the bone, in order to avoid injuring the vagina, but at the same time use caution not to hit the bone. If the rectum terminates in the vagina or bladder, by making this opening the other will close up; or if it terminates in a sac, and the operation is performed early, the result will generally be favorable; at least I have found it so in my own practice.]

HYDROCELE.

[This disease consists in a collection of water within the tunica vaginalis testis. Its development is very slow, and it is first seen at the inferior part of the scrotum and on the anterior side of the testicle. As the water accumulates it rises towards the groin and distends the scrotum to an enormous extent; it has in some instances attained to the size of a person's head. It more

frequently takes place in warm than in cold weather, and seldom occurs on both sides at the same time. In most cases the testicle can be felt at the posterior part of the scrotum.

Hydrocelc of the tunica vaginalis renders the scrotum more transparent than any other disease; so much so that rays of light may be seen to pass through it; this is one of the diagnostics of the disease: another is the suddenly obliterated indentation made by pressing the fingers upon the scrotum, whereas if the water were collected in the cellular tissue the indentation would be rather tardy in filling up; and a third is, it being situated lower down in the scrotum than hydrocele of the spermatic cord. It is sometimes the case that the tunica vaginalis is occupied by one or more bags or cysts of water; this is rather difficult in some cases to distinguish from hydrocele. A complication of hydrocele of the tunica vaginalis with an incysted one of the spermatic cord may generally be known by the swellings having begun at two different points, and having a kind of constriction between them. Dropsy or hydrocele of the spermatic cord may be mistaken for hernia or varicocele, unless the surgeon is very careful in his examination.

It would be a difficult matter to give a very satisfactory cause for this disease in all cases; it may arise, however, from blows, bruises, inflammation of the testicle or some of its coverings, or a relaxed state of the system generally; in fact, any cause that would produce dropsy, of any part of the system, in my opinion, might produce it within this cavity.

Treatment.—In very young persons this complaint has been cured by purgatives and volatile lotions. I once saw a case in a child about eight months old, wherein the scrotum was distended to the size of a butternut, which disappeared spontaneously; but in advanced life the disease assumes a more formidable appearance, and requires more energetic treatment. Tincture of iodine applied occasionally to the scrotum is very beneficial, but in a great majority of cases an operation becomes necessary.

The radical cure of this disease has been attempted in a number of ways; for instance, by passing a seton through the scrotum; by laying open the scrotum the whole length, and allowing it to heal by granulations; and by drawing off the water with a trochar and then injecting with some stimulating wash: this last operation I will describe.

The patient should be seated in a chair, with his knees extended wide apart, and the surgeon directly in front; taking the scrotum in the left hand in such manner as to have the testicle on the posterior side, and as far from the point of the instrument as possible; then squeeze the scrotum in order to make it tight, and enter the trochar at first straight in; as soon as the point is through, depress the handle and carry the point up until sufficient length is introduced; then withdraw the stillete, letting the cannula remain, through which the water will pass off; then, with a syringe, inject through the cannula a diluted tincture of iodine, or a weak solution of sulphate of zinc, or port wine and water, equal parts may be used; the injection requires to be thrown in with considerable force; then squeeze the scrotum, that the injection may come in contact with every part; when it has remained there a few minutes, let it pass out through the cannula, and then withdraw that; place the patient in bed, and lay a cloth over the wound. In the course of twenty-four hours the scrotum will be as large as ever, by the inflammation induced by the injection; when the inflammation subsides, the nature of the coats of the testicle will be changed, and a cure probably effected. Should it fail the first time, it may be tried again with a stronger injection.

Dropsy of the spermatic cord may be treated in the same manner, using caution that the injection does not enter the cavity of the abdomen, by making pressure at the inguinal ring.]

CASTRATION.

For the performance of this operation, the patient may be seated in a chair, with his body and head inclined backward. As this operation is somewhat painful, and the patient is liable to throw his hands about, if at liberty, he should be well secured and supported by assistants. All necessary preparations being made, the surgeon will take the testicle in the left hand, and making tense the parts through which he is to cut, he will, with the scalpel, make an incision, extending from the abdominal ring (the passage for the spermatic cord), to near the inferior part of the scrotum. When the spermatic cord is exposed, the surrounding attachments are all to be removed; the *vas deferens* should then be separated from the vessels, and the vessels can either be ligatured or held by a good assistant, and cut off just below where they are held or tied, and then dissect out the testicle. The next step will be to take up the vessels where they were cut off and apply a ligature, letting the ends hang out of the wound; remove the former ligature, if one has been applied, and secure the edges of the wound by sutures and adhesive plaster, apply loose dressings and lay the patient quietly in bed. If there is much irritation occasioned by the operation, prescribe an anodyne of opium or Dover's powder; if inflammation is present apply cooling lotions, and if necessary, purge with cooling medicine, such as salts, cream of tartar, &c.

DISEASES OF THE EYE.

[The eye being an organ very essential to the comfort, happiness, and well-being of mankind, I think it would not be doing justice to this work and the community whose interests it is intended to serve, to omit giving this important branch of surgery a place among its contents; although condensed in a narrow space, I yet hope it will prove sufficient to lead the general reader, the student, and the physician in the right way to diagnosticate the diseases I have described. I have consulted several authors on this subject, but the following remarks are mainly founded on my own experience.

PURULENT OPHTHALMIA.

This disease commences in the tunica conjunctiva (the lining membrane of the eyelids); its attack is very sudden and its progress rapid; when severe, it produces great pain in the eyes, a violent head-ache, and high symptomatic fever; the eyelids become tumified, and it is with difficulty that they can be separated. The tunica conjunctiva being highly inflamed is, of course, very much swollen, and finally turns outward, and gives the eye rather a frightful appearance. When the disease extends over the globe of the eye, the cornea appears sunken, loses its transparency, ulceration frequently taking place, resulting in total blindness. At the commencement of this disease, the discharge is of a thin, white, mucous character; but as the disease advances, pus flows from the eye in great profusion, and the eyelids assume a dark bluish appearance.

Among the causes of this disease, may be enumerated colds, impure atmosphere, intense light, contagion, foreign substances, such as sand dirt, &c., soap introduced into the eyes of the children when washing is a frequent cause; gonorrhœal matter applied to this delicate membrane, produces a most frightful form of this disease. I attended a case, a few months since, of gonorrhœal ophthalmia; I found the patient with his eyelids actually turned inside out, and a discharge from the eyes, as freely as any case that I ever saw of gonorrhœal discharge from the urethra.

Treatment.—The congested vessels must first be relieved by freely cupping on the temples, and applying leeches on different parts about the eyelids; purging freely is necessary, and it may be repeated a number of times. A spare diet should be strictly adhered to; the eyelids may be raised a little at times and warm water carefully injected between the lids; they should likewise be frequently bathed with a cold infusion of hops. To relieve the pain, bathe the eye with opium water, and when the inflammation is in a great measure subdued, astringent applications may be used, such as sulphate of zinc or alum. The patient should remain in a dark room, during the whole treatment of the case.

Should any fleshy protuberance make its appearance upon the inside of the lids it may be removed by excision or by caustic.

STRUMOUS OPHTHALMIA.

Strumous ophthalmia is a scrofulous affection of the eyes, consequently persons of a scrofulous diathesis are most subject to this complaint. It is considered hereditary, and may be distinguished from other diseases of the eye by the great irritability produced and by its peculiar resistance to the rays of light. In a severe case, the patient constantly holds the head down, and sometimes covers the eyes or turns the head away in the darkest place. In cases less severe, the patient walks about with his head inclined forward and his eyelids half closed; in the former, the tears are rapidly secreted and flow freely, but in the latter or milder form of the disease, the tears are diminished in quantity, and the edges of the eyelids are rough and have deposited on them a thick mucus, which becomes very dry and looks like a scale; they likewise are somewhat swollen and present a pale red color. The eyeball itself has some vessels running toward the cornea, and sometimes little ulcers are formed on the cornea.

As a remedy in this disease, I make use of the anti-mercurial syrup, tonic tincture, light purgatives, good wholesome exercise, and vegetable diet. Electricity I have used with marked advantage. I have formed a pill, which proves to be excellent in this complaint, of hydriodate of potash, one drachm, rhubarb, two drachms, and sulphate of quinine, one scruple, made into twenty pills; the dose for an adult is one at a time, three times a day. Blistering on the back of the neck is beneficial when the tears flow profusely, and, in short, all medicines that have a tendency to remove scrofulous affections may be used with advantage in this case.

Dr. Hockin advances an argument, which it appears he has demonstrated to his own satisfaction, that the intolerance of light does not depend upon the irritability of the retina, but upon the fifth pair of nerves. This idea and the treatment struck my mind so forcibly that I will here insert it for the benefit of my readers. It is contained in the following extract which I make from Braithwaite's *Retrospect of Practical Medicine and Surgery*, Part vi., page 134:]

"It is clear, therefore, that the intolerance of light, the spasmodic closure of the lids, the profuse lachrymation, the contracted state of the pupil, and the involuntary efforts to exclude the light, in strumous conjunctivitis, are not dependent upon any derangement in the state of the retina itself, but on the various filaments of the fifth nerve which supply the different parts, including the retina; and that this is the true pathology of the affection, those cases show where all these symptoms are present without phlyctenulae, or any notable redness; and, moreover, as I shall presently show, that to remove the great susceptibility of this nerve is to cure the attack.

"Observing Mr. Wormald's success in treating the slighter forms of ophthalmic affections in St. Bartholomew's Hospital, by daubing the nitrate of silver on the outside of the lids, Dr. Hocken gave it a fair trial in cases

of strumous affections, and from his own experience highly exalts the application.

Mode of Applying the Nitrate of Silver.—A clean stick of the nitrate of silver, having from one to two inches exposed, should be selected. The patient's eyelids are to be closed, and put slightly on the stretch by applying the thumb of the left hand to the eyebrow and gently raising the skin; the nitrate of silver is then to be passed, previously moistened, over the whole surface of the skin of the upper, and subsequently of the lower eyelids, two or three times, smoothly, and without much pressure, bringing, not the point, but the sides of the stick of lunar caustic in contact with the skin. The object of this application is only to blacken and not to occasion any severe effects, and it will be found that, after a short time, as soon as the nitre has had time to act fully on the fifth nerve, it will completely relieve the intolerance of light, the lachrymation, and what is of the most importance, the spasmodic strivings of the orbicular muscle, and hence relieves the patient from that constant irritation and pressure which maintains and aggravates the affection.

"In one of my patients, a little boy, four years old, I had an opportunity of treating an attack of strumous conjunctivitis and purulent ophthalmia in different eyes at short intervals of time. The strumous attack was cured at once, but in about a week after he was brought to me with purulent ophthalmia of the opposite eye. I at first used leeches, purging, and strong solutions of nitrate of silver, to be placed between the lids, but this treatment although it subdued the severity of the attack, failed to cure it; it merely subsided in a chronic form. At this stage I applied the nitrate of silver to the outside of the lids, in the way described, which immediately gave a new feature to the case. He improved directly, and a second application, about a week subsequently, produced a cure in a few days."

PTOSIS.

This affection consists in an inability of raising the upper eyelid. It arises from a preternatural relaxation, and extension of the common integuments of the upper eyelid, which hang down in a kind of fold; from previous inflammation; tumefaction of the eyelids; a paralytic affection of the levator, or an unnatural contraction of the orbicularis muscle. With the exception of the inability of raising the upper eyelid, the patient has not the slightest ailment; the eye is not at all red, though it rather rejects the light, when opened. The relaxed fold of skin is sometimes situated rather over the outer commissure than the middle of the eyelid, in which case the lid can be opened towards the nasal commissure, and the eyeball becomes habitually rotated towards the nose for the purpose of vision, whereby strabismus and, if the disorder be not soon rectified, an obliquity of sight is occasioned.

This difficulty, if it arises from a relaxation of the integuments, may be removed by the excision of a long slip of skin from the eyelid, just broad enough to include the redundant quantity. The portion to be removed should be taken up with the forceps and the excision performed with scissors or with a knife, and the wound closed with a suture; on healing it will have a tendency to draw the lid up. When the disease depends upon paralysis, it is a symptom of apoplexy, upon the relief of which, its cure depends. The treatment directed particularly against the paralytic affection of the levator, consists in frequently bathing the eye and surrounding parts with cold water, or the anodyne wash, stimulating washes applied to the forehead and temples, electricity, shower baths, bark, and other tonics. The cure of spasmodic ptosis, which is rather a symptom of other diseases, than a distinct affection, consist in the removal of the original complaint; but generally speaking, antispasmodic medicines, blisters on the temple or behind the ear,

and fomenting and bathing the eye, eyelids and face with a decoction of poppy heads and cicuta, are the means which merit the consideration of the practitioner.

INFLAMMATION OF THE LACHRYMAL SAC.

The symptoms of the first stage of this complaint are as follows: in the inner angle of the eye, precisely in the situation of the lachrymal sac, a circumscribed, very hard, tender swelling arises, of the shape of a bean, producing a lancinating pain when touched, and gradually acquiring considerable redness. The absorption and conveyance of the tears into the lachrymal sac, and thence into the nose, are completely interrupted; the lachrymal papillæ are shrunk; the puncta cannot be seen, and of course the tears fall over the cheek. The nostril on the affected side soon becomes perfectly dry. As the inflammation is constantly spreading to the orbicular muscle and integuments in the corner of the eye, the complaint often presents an erysipelatous appearance, extending to the eyelids and down the cheek. In weak, irritable constitutions, towards the end of the first stage of the inflammation, a degree of symptomatic fever prevails, with severe head ache, great redness and swelling of the whole inner canthus of the eye.

At the commencement of the second stage a copious morbid secretion takes place, and accumulates in large quantities, and distends in a great degree the anterior side of the sac. Hence the swelling is here very manifest, and a fluctuation may be felt in it. Now, not only the swelling of the lachrymal sac increases more and more, but the redness acquires a deeper color, the skin becomes more shining, the fluctuation still more evident, and at length, in the centre of the tumor, a yellowish soft point presents itself, and somewhat less pain is experienced than formerly.

TREATMENT.—In the first stage the indication is to reduce the fever and inflammation, by purgatives, low diet, cold application, sudorifics, &c., and if the tumor appears inclined to suppuration it may be encouraged by emollient poultices. In the second stage, when the sac becomes so distended with mucus and matter that the centre begins to be soft, and a yellowish point makes its appearance with a perceptible fluctuation, the sac should be freely opened, affording its contents a ready outlet; after which it should be freely and often washed with warm water and a decoction of witch hazel bark or marsh rosemary root. When by means of such treatment the mucous secretion from the sac has been brought into a healthy state and all the induration has subsided, the period has arrived for the surgeon to think of taking measures for the re-establishment of the passage through the nasal or lachrymal duct, if it should not already have become pervious of itself, which, when the inflammation has been of a healthy kind, and the treatment judicious, not unfrequently happens.

SCLEROTIC OPHTHALMIA.

This disease is frequently met with, and is generally understood by the term inflammation of the globe of the eye. It first makes its appearance by small red blood vessels running in straight lines over the globe of the eye, towards the cornea, which increase in number, and, if not arrested, the whole eye comes under the influence of inflammation. There is generally accompanying this disease, as well as other cases of ophthalmia, a high symptomatic fever; but no purulent discharge, and the redness is somewhat lighter than that exhibited in purulent ophthalmia. The patient at first can bear the light without much inconvenience, but as the disease progresses, light becomes intolerant; the tears cease to flow, and in consequence of the heat about the eye, are apparently dried up; a deep-seated pain in the orbit, sometimes extending to the brain; and is frequently attended with extravasation

of blood in the cellular substance between the covering of the eyeball and the lids, producing the appearance of a fleshy substance attached to the ball, and assuming the character of chemosis; the cornea changes its transparency for a whitish appearance, and finally ulceration takes place.

The common causes of this disease are colds, lodgment of foreign bodies on the ball of the eye, acrid exhalations, intense rays of light, rheumatism of an inflammatory nature, night watching, an excessive use of ardent spirits, and dissipation in its various forms.

Treatment.—In mild cases but little requires to be done, except to apply some cooling lotion, as a cold infusion of hops, &c.; but in more violent attacks of the disease, the indications are to restore the natural functions of the stomach and digestive organs (a deranged state of which is one of the primary causes), by the exhibition of mild cathartics and emetics, which may be often repeated. The pores of the skin should be opened by the use of the fever powder, white root tea, Dover's powder, and in short, any thing that will produce a determination to the skin and at the same time is not of a heating nature; cupping on the temples, and leeching at the inner corner of the eye, should not be neglected in severe cases; blisters on the neck and behind the ears, if kept open for some time, have a very salutary effect. If the case is attended with much pain, the eyes should be bathed, four or five times a day, with opium water, which is prepared by infusing in a pint of boiling water, twenty grains of opium.]

IRITIC OPHTHALMIA.

[This disease consists in an inflammation of the iris, which arises from various causes, as exposure in cold and damp places or before a hot or bright fire; from accidental injuries, and perhaps the most frequent causes are rheumatism, venereal, and the use of mercury.]

In iritic inflammation a very uneasy sensation of general constriction and tension affects the whole eyeball, and soon changes into an obtuse, deep-seated, throbbing pain, increasing every instant, and quickly propagating itself over the eyeball, through the brain, to the top of the head; the power of vision gradually declines, and at the same time the pupil, which loses its clear shining blackness, contracts without being deprived of its circular figure, or drawn out of its natural position, until at length it is so completely closed that the iris apparently has no aperture whatever. But long before this perfect closure of the pupil takes place, the power of seeing has become nearly or quite extinct, though after the faculty of perceiving the external light is gone, fiery appearances, which seriously trouble the patient, are frequently seen by him.

As the disease advances, the iris evidently loses its natural color; becoming greenish when it was gray or blue, and reddish when it was brown or black. In consequence of the iris swelling and projecting towards the cornea, the anterior chamber becomes considerably diminished. Immediately the least mark of swelling of the iris is seen, together with a moderate contraction of the pupil, the whole sclerotica assumes a pink red color; a plexus of innumerable blood vessels is seen in the conjunctiva; and the cornea loses much of its natural brilliancy, without becoming actually opaque. The latter symptoms of this form of ophthalmia are attended with manifest general indisposition and severe head-ache.

If the disease be not arrested, the matter collects in such quantity that the cornea becomes opaque, is rendered more prominent, and afterward conical, like an abscess, ultimately bursting during an aggravated attack of pain, when the eye shrinks and the sufferings gradually cease.

The syphilitic form of this disease is peculiar in not discovering, at first, manifest signs of inflammation, stealing on clandestinely, without producing

much uneasiness. It afterward relaxes the vessels of the conjunctiva and lining of the palpebræ, and in time it causes ulceration of the margins of the eyelids, the vessels of the sclerotica are enlarged and form a copper-colored ring around the cornea, and sometimes dusky-red excrescences spring up from its surface, the pupil is contracted and cloudy, and the cornea grows opaque, the eye is affected by change of temperature, and in the worst stage it excites itching in the eyes, violent pain in the eyebrows, a copious discharge of tears, and intolerance of light, which are greatly exasperated at night and abate in violence towards morning.

Rheumatic iritis produces great distension of the eyeball, accompanied with excruciating pain, which frequently extends to the face and sides of the head. The pains are more of a dull agonizing kind than acute, and, though unceasing, they vary much in degree, coming on at times in very severe paroxysms, and with great violence when the head is bent downward. Sometimes the pain is excited by merely touching the scalp, and the patient is unable to rest his head on the affected side or even lean it on a pillow. At the commencement of the disease there is often a disagreeable feeling of dryness of the eye, but sooner or later a very copious secretion of tears takes place, and the eye suffers considerably from exposure to light. At length the cornea becomes opaque, the iris changes its color, and the pupil is frequently filled up with coagulated lymph.

When this disease proceeds from the use of mercurial preparation, the symptoms and progress are nearly the same as described in syphilitic inflammation of the eye, with the exception of the absence of the copper-colored ring around the cornea, and the intolerance of light being much greater in the mercurial than in the syphilitic form.

Treatment.—The simple case of iritic ophthalmia, may be treated judiciously by cupping, leeching, blisters, emetics, cathartics, warm baths in some cases and in others cold, cooling applications to the head, &c. Extract of stramonium applied around the eye externally will have a tendency to expand the pupil and thereby destroy the adhesions, which will in a measure restore vision.

The treatment of the three last named forms of the disease, viz., the syphilitic, rheumatic, and mercurial, consists in removing the cause that produced the disease: the exhibition of alteratives should be principally relied upon: the anti-mercurial syrup is second to nothing as a remedy. Hydriodate of potassa has been very successfully used in these cases; and, in short, whatever has a tendency to alter and change the secretions of the system, and restore action and tone to the various organs, will, in that proportion, have a tendency to effect a cure.

Perseverance in a low and spare diet is desirable, until the inflammation has subsided.]

STAPHYLOMA.

[Staphyloma is that disease of the eyeball in which the cornea loses its natural transparency, rises above the level of the eye, and even projects beyond the eyelids, in the form of a whitish pearl-colored tumor, at first soft, but afterward becomes hard. The continual exposure of the eyeball to the air, and foreign substances coming in contact with it, render the eye painful and inflamed.

There are two kinds of this disease; partial and total. In the former, the cornea is partially opaque, and there is some vision remaining; whereas in the latter, the whole cornea becomes opaque, attended with a total loss of sight. One or both eyes may be affected at the same time.

The causes of this complaint are either wounds of some nature or repeated attacks of inflammation.

The sight, when once lost by this disease, has never as yet been restored, and nothing can be done except to relieve the patient by surgical means. If the cornea projects beyond the lids, and can be destroyed by caustic, that is the best way; but if this cannot be conveniently effected, it may be opened to admit the escape of the humors and allow the eye to fall in; by this means the inflammation will subside and the appearance of the patient will be generally improved.]

HYDROPTHALMIA.

Dropsy of the eye is a disease rarely met with; but when it does occur, it may be situated in one or both chambers of the eye, and is generally dependant on some constitutional affection, as general dropsy, or any cause that produces it.

The diagnosis of this disease is a gradual enlargement of the globe of the eye, accompanied with little pain or injury of vision. In the progress of the disease, as the eye protrudes from the socket, and the globe becomes somewhat tense from the accumulation of water, the patient experiences more or less pain, the cornea begins to lose its transparency, and vision is impaired: the aqueous humor becomes thick and the iris appears more deep-seated and trembles on the slightest motion of the head; and finally if the water is not evacuated, a violent irritation will be produced, giving place to suppuration, and result in the loss of the eye.

Treatment.—If this disease is connected with general dropsy, the same remedies are indicated as in that complaint. In the majority of cases, however, the water must be evacuated by passing a needle through the sclerotic, behind the cornea, and into the posterior chamber, the water will flow freely. It may be necessary to repeat this operation several times; it however seldom effects a permanent cure.

CATARACT.

Dr. Gibson says that "cataracts differ from each other as much in consistence as color. Sometimes the lens is rendered perfectly fluid, and resembles milk, and on this account has been called the milky cataract. Sometimes it is found of the consistence of jelly or cheese, and hence the terms gelatinous and caseous cataracts. Not unfrequently the lens is perfectly hard, or ossified, so much so that the sharpest instrument will make no impression upon it. When the anterior or posterior capsule is rendered opaque, and the lens remains transparent, or is absorbed, the disease is called capsular cataract. When a cataract exists at birth, the appellation congenital is applied to it. Most cataracts are of a bluish or pearl color; some are gray or green; others white as snow. In a few rare instances the lens have been found of a brownish tint or perfectly black.

"The formation of cataract has never been satisfactorily explained. By some the disease has been attributed to inflammation of the lens and its capsule, by others to hereditary transmission. That it may proceed from blows upon the eye and from wounds of that organ is very certain. In all cases of the kind there is reason to believe that the anterior capsule of the lens is either ruptured or cut, so that the lens itself is brought into immediate contact with the aqueous humor, which possesses the well-known property of dissolving its texture as well as that of its capsule. It is remarkable, however, that an injury or destruction of one eye, as I have several times witnessed, will frequently give rise, at a subsequent period, to a cataract in the other. Old persons are most subject to cataract, though the disease may occur at any period of life; indeed, new-born infants are not exempt from it,

and it has sometimes happened that all the children of a numerous family have been born with cataracts in both eyes.

"Persons whose eyes are much exposed to vivid and reflected lights are said to be peculiarly liable to cataract.

"The existence of cataract may be determined generally by the following symptoms. In the commencement, the patient is often sensible of a diminution of sight long before any opacity can be seen behind the pupil. Objects, moreover, especially white ones, appear to him as if enveloped in mist or smoke, and when the eye is suddenly exposed to a strong light, vision is nearly destroyed. In a dull light, on the contrary, vision is more distinct, because the pupil, being more expanded, the rays of light, besides their increased quantity, pass through the thin margin of the lens. When the lens is completely opaque, its color will commonly indicate the nature of the disease. The black cataract, however, is very liable to be mistaken for amaurosis. Cataracts are said to have been formed very suddenly, or in the course of a night, without any obvious cause; but I am inclined to believe this to be erroneous, and that the disease has existed, at least in one eye, for some time, without the patient being aware of its presence, and that the discovery of it has been purely accidental.

"*Treatment of Cataract.*—Although repeated attempts have been made, both by internal remedies and by local applications, to remove cataract, there is no well-attested instance, I believe, on record, of a cure having been effected, except by an operation. There are two or three different operations now in use, each of which it will be proper to describe.

"Couching, or depression, of the cataract, an operation practised, there is reason to believe, long before the time of Celsus, is usually performed by the modern surgeon either with a curved or straight needle. The former is preferred by Scarpa—the latter by Hey. The patient being seated on a low stool, with an assistant behind to support his shoulders and head, the operator, sitting or standing before him, directs the assistant to raise the upper eyelid, and hold it steadily, while with one or two of the fingers of his own hand he depresses the lower lid. He then takes the needle (and if Scarpa's be used, which I prefer to any other), holds it in his fingers like a pen, and laying the handle of the instrument nearly parallel with the patient's temple, directs its point backwards, and its convex surface forwards, and penetrates the coats of the eye, at its external angle, about two lines posterior to the iris. The needle is next pushed towards the superior margin of the crystalline lens, and thence in the direction of the pupil, until its point is distinctly seen. It only remains to lacerate freely, but cautiously, with the point of the needle, the anterior capsule of the lens; which being done, the lens itself should be pressed downward and backwards by the needle, and lodged in the vitreous humor. Instead of withdrawing the needle immediately after from the eye, as is too often done, it should be suffered to remain a few seconds, lest the lens reascend, in which case the surgeon should again depress it, and then carefully remove his instrument and close the eyelids.

"Extraction of the cataract is performed by a knife instead of a needle, and the opening made in the cornea in place of the sclerotic coat. There are two knives in general use—the one invented by Wenzel and improved by Ware, straight and blunt on the back, convex on the edge, five-eighths of an inch in width, and in other respects shaped like a wedge, or gradually tapering from the handle to the point—the other invented by Beer, and differing from that of Wenzel chiefly in having a triangular shape. With either, the operation may be equally well performed.

"The necessary arrangements being made, the patient is placed on a low chair or stool, and his head committed to an intelligent assistant (one accus-

tomed to the office and in the habit of performing the operation), who with his fingers, instead of a speculum, elevates the superior eyelid, and supports it against the superciliary arch. The surgeon himself taking charge of the lower lid, which he depresses with one or more fingers, and waiting until the patient rolls the eye towards the inner canthus, and holds it steady, enters the knife above the equator of the cornea and about a quarter of a line anterior to its junction with the sclerótica, with the edge downwards, passes it slowly and steadily along through the anterior chamber until its point emerges at the inner edge of the cornea. This completes what has been called the punctuation of the cornea, and to finish the section it is still necessary to push on the blade of the instrument until it cuts itself out. As soon as this is accomplished, the aqueous humor is discharged, the knife is withdrawn, and the lids are closed for a few moments.

“The next step of the operation, and the most important one, is to separate the lids, gently raise the flap of the cornea with the curette, pass a gold or a silver wire through the pupil, and cautiously lacerate the anterior capsule of the lens precisely in its centre. If this part of the operation be well managed, and care taken to avoid any thing like pressure upon the globe of the eye, the lens, after its capsule is broken, will gradually approach the surface and be discharged through the opening made in the cornea, without bringing with it any portion of the vitreous humor. As soon as the lens is removed, the flap of the cornea should be adjusted, the lids closed, and a bandage applied lightly over both eyes.

“It sometimes happens, owing principally to the cornea knife being dull and ill-constructed, that the aqueous humor flows before the section of the cornea is completed, and that the iris falls under the edge of the knife, and is liable to be wounded. To guard against this, Baron Wenzel suggested an expedient which has proved extremely important—friction of the cornea with the end of the finger during the passage of the knife. If this plan be adopted, the iris will immediately retire from the edge of the knife, and so remain as long as the friction is continued.

“The absorbent practice, as it is denominated by Sir William Adams, may be said, perhaps, to have originated with Mr. Pott; at least that eminent surgeon was fully aware of the solvent power of the aqueous humor, and frequently took advantage of the circumstance, by pushing fragments of the lens which happened to be detached during the operation of couching, into the anterior chamber. Gleize, also, as well as Scarpa, Hey, and others, followed the same practice. But it is chiefly owing to Saunders, Conradi, and Adams, that this mode of removing the cataract has been brought to its present degree of perfection.

“There are two operations in use, each founded upon the absorbent principle—the anterior and posterior. The first, or the operation of Conradi, as it is usually called, is chiefly adapted to the soft or fluid cataract, and may be performed in the following way:

“The pupil being dilated by the application of the extract of belladonna or stramonium to the eyebrow, an hour or two before the operation, the patient is seated, and the eye secured as in the operation of couching or extraction. With a straight spear-pointed needle, an inch in length, rounded in the shank, and tapering from the shoulder towards the point, the surgeon penetrates the cornea, at its lower and outer part, about a line anterior to its union with the sclerotic coat, carries the needle along the plane of the iris and through the pupil as far as the centre of the crystalline lens, the capsule of which is first lightly scratched over its whole surface, then freely torn, after which the lens itself may be broken up and some of its fragments brought by the needle into the anterior chamber.

“It is highly important in performing this operation to guard against wounding the iris; the surgeon, therefore, should not attempt to accomplish

too much at a single operation, but calculate, in most instances, upon a second or third being necessary. In general several weeks elapse before the remains of the capsule and lens entirely disappear.

"The posterior operation is distinguished from the anterior by the circumstance of the opening being made in the sclerotic coat instead of the cornea. Mr. Saunders was in the habit of performing this as well as the anterior operation; but for many valuable improvements in the mode of executing it, and for the invention of ingenious instruments adapted to the purpose, we are particularly indebted to Sir William Adams. The needle chiefly employed by that surgeon for 'solid cataract in children and adults,' is spear-pointed, eight-tenths of an inch long, the thirtieth part of an inch wide, and slightly convex throughout the blade. The eye being fixed by a concave speculum, the needle is passed through the sclerotic coat about a line behind the iris, perpendicular to its edges, until it reaches the anterior chamber and the nasal margin of the pupil. Its edge is then turned backwards, and at a single stroke made to divide the capsule and its lens. After this, repeated cuts are made in different directions, so as to divide the cataract into numerous pieces, most of which should be pushed afterwards by the flat surface of the needle into the anterior chamber, for solution.

"Besides couching, extraction, and the absorbent practice, other operations have been proposed for the removal of cataract. For the most part, however, they are entitled to so little attention, as to render a description of them unnecessary. But a question naturally arises respecting the merits of the operations in common use, and how far one should be preferred to another; though there is little probability of such a question being ever satisfactorily determined; for, on both sides, it has been customary to extol the merits of one, and exaggerate the inconvenience of the other. Perhaps, it may be fairly stated, in relation to the operation of extraction, that under favorable circumstances—where the subject is young, healthy, the eye prominent, the vitreous humor sound, &c.—this operation, when dexterously performed, possesses advantages over every other, inasmuch, as the cataract is at once removed, and a speedy cure follows. But, on the other hand, it must be recollected that the operation is always extremely difficult, and that, if it once fail, it cannot be repeated. As respects the operation of couching, it appears to me that the chief objection to it arises from the difficulty of keeping the lens below the axis of vision; in addition to this, from its lodgement, in many instances upon the retina, great pain, and incurable amaurosis have not unfrequently ensued. Under most circumstances, therefore, I am inclined to prefer the absorbent practice, principally because the operations are easily executed, give little pain, and, if necessary, may be repeated again and again without injury to the eye, and are most likely to prove successful.

"It should be remembered that, previous to the performance of any operation for cataract, the patient must be prepared by diet, purging, &c.; that the stramonium or belladonna be invariably used; that means be taken to subdue inflammation after the operation, and that the eye be not prematurely exposed to too strong a light. As a general rule, too, no operation should be undertaken so long as the patient enjoys the perfect sight of one eye."

[In Braithwaites Retrospect, Part iv, p. 87, I find the following new method of depression for cataract.]

"I have more than once performed a modification of the operation for depression, which I believe to be new; it is one applicable only to those cases of cataract which occur in combination with disease of the vitreous humor. The first case in which I adopted the plan to which I allude, was that of a lady, a patient of Mr. King, your demonstrator of morbid anatomy, who was the subject not only of cataract, but was also affected by synchysis, a disease

which consists, as you know, in a melting down, or softening of the vitreous humor, so that the consistence of this part becomes almost fluid. Now here, of course, extraction was out of the question, for a section of the cornea would have allowed the exit of, perhaps the whole of the contents of the globe. I tried the operation for depression, but found, that in consequence of the very great change which had taken place in the vitreous humor, the lens, after repeated attempts to keep it depressed, instantly rose to its former place. I then attempted the operation for solution, but as the cataract was hard, and apparently insoluble, no benefit was derived from this procedure. Well, gentlemen, as the ordinary means of relief had failed, or were impracticable, and as I could not, by the plan I proposed to myself, make bad worse, I determined to try a new method of practice. I thought that although, while the parts were in situ, the buoyant power of the vitreous humor might, in its more fluid state, defeat the desired object of the operation in the manner I have described, yet, that it might be possible, by tapping the globe through the sclerotic, so as to evacuate a portion of that humor, sufficient to sink the lens below the axis of vision, I thought, I say, that by such a mode of proceeding a permanent depression of the cataract might be effected, by a newly-formed secretion collecting more readily above it than immediately below it, in consequence of the presence of the lens in the lower part of the humor.

The operation I performed was as follows:—The patient was held as in the operation for depression; I then pressed a large-sized needle with cutting sides through the sclerotic, about three lines distant from its junction with the cornea, a little below its transverse diameter, and as soon as the point had passed about an eighth of an inch into the globe, I drew its cutting edges vertically downwards, making in this way an incision, parallel with the corneal line of attachment of the sclerotic, and of about a quarter of an inch in length; a small portion of vitreous humor now escaped, but not sufficient for my purpose; I therefore made gentle pressure upon the globe until enough had been pressed out to sink the lens below the pupil; I think nearly one-fourth of the humor must have escaped: after the operation, a piece of linen kept constantly moist was applied over the lids—the head and shoulders kept raised, and the patient placed in a darkened apartment; on the following day, the globe had nearly recovered its size and form, the wound was inflamed, and no more uneasiness or pain was complained of, than what usually follows an operation for depression; the pupillary aperture was perfectly clear. No subsequent excess of inflammation followed, the wound in the sclerotic healed kindly, the lens remained depressed, the globe recovered its natural appearance, and vision was so far restored, that the patient could read moderate-sized print with the aid of glasses. I have since performed this operation twice; in one case with success, the other terminated unsatisfactorily; in both of these cases I used Beer's cataract knife, which answers the purpose better than the needle."

AMAUROSIS.

This affection consists in a partial or complete loss of vision, occasioned by a paralytic affection of the retina or optic nerve.

In this disease an unusual expansion of the pupil exists; and it frequently assumes a green or dark blue color, is irregular in its shape; and on a sudden transition from darkness to a bright light, contracts but slowly, and in some cases not at all: again, with some it is unnaturally contracted, while with others, it is not affected by the stimulus of light. When vision is not entirely extinct, a dark mist or something like smoke appears before the eyes. One patient in describing his case to me, stated, that every surrounding object had the appearance of being seen through a hollow glass tube. Others

imagine the ground to be nearer their face than it really is ; consequently, in walking they step higher than is necessary. The bright and animated appearance of the eye is changed to a vacant stare, frequently attended with uneasy motions, and objects appear floating and moving about directly before the sight, which becomes very annoying.

Preceding an attack of amaurosis, excepting in cases produced by injuries, the patient generally experiences, for some length of time, violent pain in the temples, forehead and eyebrows, intermitting occasionally for a few hours ; coldness about the head, accompanied with dizziness, producing a staggering walk ; a sense of weight in the head, particularly over the eyes ; to some degree a paralytic affection of the extremities often occurs, and a partial closure of the eyelids. This paralytic affection may take place gradually or quite suddenly. I have recently seen a case in which these last symptoms presented themselves : the patient was suddenly attacked with apoplexy, which terminated in death, within a few hours. I am of opinion, that in many cases, amaurosis is a premonitory sign of apoplexy.

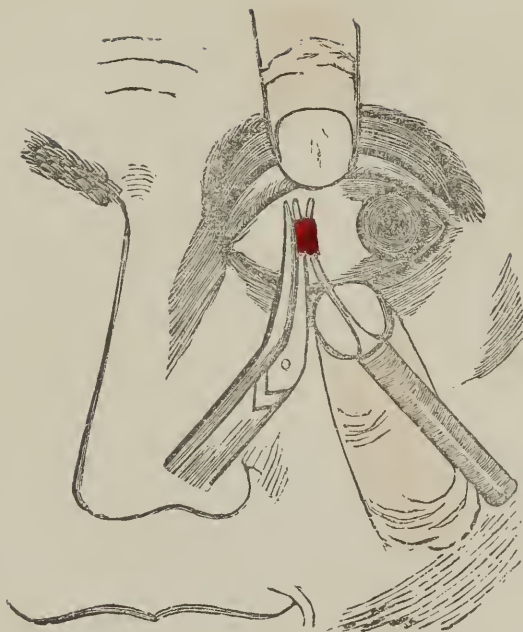
TREATMENT.—Amaurosis arising from a derangement of the digestive organs, should be treated with emetics, cathartics, and sometimes alteratives and tonics may be used with advantage. When arising from paralytic affections of the optic nerve, electricity is advisable, in order to produce a nervous excitement : strychnine (a preparation from *nus vomica*), is a very celebrated remedy, and is one of the most active medicines existing in our *materia medica*. My usual method of exhibiting strychnine, is in form of pills, composed of one drachm of rhubarb and one grain of strychnine, made into sixteen pills ; the dose for an adult is one a day, which may be increased to two and sometimes even three ; after using them eight or ten days, omit a few days and then commence again. All nervines may be advantageously introduced in this disease.

SQUINTING OR STRABISMUS.

This deformity is occasioned by a contraction of one of the muscles of the eye ; a surgical operation has of late years been practised for the relief of it, which has generally proved successful.

The eye as it is situated in the orbit is imbedded in a fatty tissue, and has attached to the globe, six muscles ; four recti and two oblique. The four recti muscles have their origin at the bottom of the orbit, and stretching forward, are inserted into the globe of the eye, about four lines from the cornea, on either side. The muscles take their name from their situation and use ; for instance, the *rectus superioris* arises from the upper part of the foramen opticum, is inserted into the globe above the cornea and raises the eye upward ; the *rectus inferioris* arises from the inferior or lower margin of the foramen opticum, is inserted below the cornea and draws the globe down ; the *rectus internus* takes its rise from the inner part of the same foramen, has its insertion below the cornea and the inner canthus of the eye, and draws the globe towards the nose ; the *rectus externus* has its origin at the external or outer margin of the foramen, is attached to the globe between the cornea and the external canthus, and moves the eye outwards. The oblique muscles have their origin and insertion at nearly the same points, and roll the eye in various ways. The *rectus internus* is the shortest of the six muscles, and is the one most frequently contracted.

The performance of an operation for strabismus requires in addition to the surgeon, two or three good assistants ; unless the patient be a child ; in that case it would be advisable to secure it upon a table in such a manner that there would be little possibility of its moving. An application of cold water to the eyelids, closed, will contract the small vessels of the conjunctiva, and prevent the abundant flow of blood, which would be an obstacle, in perform-



The above Cut represents the Operation for
STRABISMUS.

The fingers of the assistant are here seen, placed upon the lids of the eye, above and below, to keep them open. The pupil is turned outward, or from the nose. The (red) muscle is raised by the blunt hook through the conjunctiva, by the side of which, one blade of the scissors is introduced under the muscle to divide it.

ing the operation. If the patient is placed in a recumbent position, one assistant should stand opposite the surgeon and hold the eyelids open by pressing them firmly against the bone, above and below (this requires some practice in order to do it well), and another assistant should be in readiness to wait upon the operator. If the patient be an adult, a sitting posture is most convenient; one assistant may stand behind and support the head of the patient firmly against his breast, and at the same time hold the eyelids open as before described; the surgeon will take his seat directly in front, with his knees each side of the patient, directing him to look outward, if the internal rectus is to be divided: then with a pair of forceps raise the conjunctiva, about half way between the cornea and the semi-lunar fold in the inner corner of the eye, and cut out a small piece with the scissors or make a flap: enter the blunt hook and draw the muscle out, then pass the scissors down by the side of the hook and cut the muscle entirely across. Sponge the eye clean, close the lids, and direct the patient to avoid rubbing or washing the eye violently, for a few days. If both eyes are affected, the operation may be performed on both at the same time.

If on making the incision an effusion of blood takes place, it must be removed before proceeding any farther. To introduce the blunt hook, first raise the handle up towards the eyebrow, with the point turned inward; pass it down by the side of the eye, gently pressing it against the globe, until sufficiently deep to take the muscle; then depress the handle and withdraw it a little, if the muscle is within the hook, bring it to the outer incision and divide. The same rules are to be observed in dividing the external recti, with this exception—the patient must be directed to look towards the nose, and the incision must be made about half way between the cornea and the external canthus of the eye.

This operation, to be performed well, requires considerable practice; it is therefore advisable, in order to gain correct information of the anatomy of the eye, to procure in the first place a bullock's head, and dissect the eye carefully, then others to operate on, practising thoroughly the different movements of the operation, especially passing the hook around the muscle; after a time substitute a sheep's eye, which is smaller. By this means the operator becomes familiar with the use of the instruments, and the general appearance of the parts, and errors will be less liable to occur, in performing the operation upon the human eye.

The instruments necessarily used in the performance of this operation are a small pair of forceps, a hook and a pair of curved scissors. Some operators make use of a sharp hook to take up the conjunctiva, but it is very liable to slip; therefore I substitute a pair of forceps, terminating at the points in hooks, one hook being crotched and the other sharp, matching together in such a way that the conjunctiva will not slip when once taken up. The hook should be about the size of a darning needle, and bent quite short at one end, which must be entirely blunt but perfectly smooth, the other end, of course, in a handle. The scissors may be curved sidewise, or at the joint and edgewise.

A soft sponge and a bowl of cold water is indispensable. These, together with a knowledge of the parts, a good light and a steady hand, will enable the skillful surgeon to entirely overcome the deformity.

I have myself performed this operation a number of times with complete success, and have endeavored, in the foregoing remarks, to lay my method before the reader as plainly as possible.

CONCLUSION.

In concluding the foregoing remarks on surgery, the editor would say, that it has been revised, the additions have been made with great care and much pains have been taken to render it instructive and easily understood, and at the same time in as few words as possible; yet I think it is sufficiently explicit to convey all the information that is necessary in performing the operations that are here recommended. The amount of success attending a surgeon, the dexterity with which he operates, and the certainty with which he does all things in surgery, depends upon the amount of knowledge he possesses: in other words, just in the same ratio as his knowledge extends, will he be successful. The amount of nerve that is necessary for a surgeon, to perform an operation, depends also in a great measure upon his knowledge of the parts connected with the operation. Again, it is not always on the dexterity of the operator that the greatest amount of success depends, for often the judgment of the surgeon is called in requisition to decide when and where to operate, or whether it is best or not to operate at all, and likewise the former and after treatment. Almost any one can cut off a limb, for all that is requisite to be done is to cut away every thing, take up the vessels, dress the wound and let it get well; or it may be done as a sea captain once performed the operation; when from some cause it became necessary to amputate the leg of one of his men, he tied a rope tight around the limb, cut down to the bone with a knife, and with a saw completed the operation: he then dressed the stump with a very thick coat of melted rosin and tar, thereby gluing up the bleeding ends of the vessels: the case terminated favorably and the patient recovered. But this amount of knowledge will never answer for the surgeon, when operating for hernia or taking up some of the important arteries, for a little deviation from the right course may blast his reputation forever and perhaps cost the life of his patient. A good surgeon must necessarily be familiar with anatomy, especially the parts upon which he is to operate.

The few engravings in the foregoing pages have been prepared with special care, expressly for this work, and are designed to give the surgeon, at first glance, a good idea of the operation they are intended to represent.

Some may agree and others may disagree with me on many points, but all I can say in return, is, try them, and if they are not good abandon them, but if they are what they profess to be, give the credit where it is due. On a fair trial and impartial judgment the editor is willing to stand or fall.]

PART VI.

Under this Department will be found various kinds of formulæ for compound-
ing Medicines that are in common use, together with Favorite Recipes.

BALSAMS.

The medicaments here mentioned are not natural balsams, but certain compositions, which, from their balsamic qualities, usually go by that name. This class of medicines was formerly more numerous than at present, and held in great esteem.

Anodyne Balsam. Take of white Spanish soap, one ounce; opium, two drachms; alcohol, nine ounces. Digest them together in a gentle heat for three days; then strain the liquor, and add to it three drachms of camphor.

This balsam is intended to ease pain. It is of service in violent strains and rheumatic complaints, when not attended with inflammation. It must be rubbed with the warm hand on the part affected; or a rag may be wet with it and applied.

Turlington's Balsam of Life. Take of balsam of Peru, half an ounce; balsam of Tolu, one ounce; gum storax, one ounce; gum guaiacum, one ounce; gum Benzoin, an ounce and a half; hepatic aloes and frankincense, each two drachms; and dragon's blood, one ounce. Let the gums be bruised, and put the ingredients into a quart of proof brandy; put it in a warm place (a sand heat is best), and let it be shaken frequently for seven or eight days; it is then fit for use.

This healing balsam is applied externally to heal recent wounds or bruises, and for that purpose is second to nothing. It is likewise employed internally to remove coughs, asthmas, and other complaints of the chest. It is said to ease the colic, cleanse the kidneys, and heal internal ulcers. The dose is from twenty to thirty drops.

An abridgment to Turlington's balsam, and which perhaps answers all its purposes, is made by taking of Benzoin three ounces, balsam of Peru two ounces, hepatic aloes half an ounce, rectified spirits of wine two pints. Digest with a gentle heat three days, and strain.

These preparations have long been celebrated under the different names of Persian balsam, balsam of Berne, Friar's balsam, Jesuit's drops, &c.

Balsam of Honey. Take gum Benzoin one drachm, balsam of Tolu, two drachms, saffron half a drachm, honey four ounces, alcohol one pint. Digest. Dose one drachm three times a day. This is very useful in coughs.

Godbold's Vegetable Balsam. A pound of sugar candy, dissolved by heat in a quantity of white wine vinegar, and then evaporated to the measure of a pint; during which operation, as much garlic as possible should be dissolved in it.

CATAPLASMS, &c.

Discutient Cataplasm. Barley meal six ounces, fresh hemlock or cicuta leaves two ounces, vinegar a sufficient quantity. Boil the meal and cicuta in the vinegar, and then add two drachms sugar of lead.

Ripening Cataplasm. White lily root four ounces, fat figs and raw onions bruised, of each one ounce, yellow basilicum ointment two ounces, gum galbanum half an ounce, linsced meal as much as necessary. Boil the roots and figs in water; then bruise and add to them the other ingredients, so as to form the whole into a soft cataplasm. The galbanum must be dissolved previously with the yolk of an egg.

Another, perhaps equally efficacious, and less expensive, is a poultice of bread and milk, with a sufficient quantity of either boiled or raw onions in it, and softened with oil of fresh butter.

Sinapisms. Sinapisms are employed to recall the blood and spirits to a part, as in the palsy and atrophy; they are also applied to the feet in low fevers. The sinapism is only a poultice made with vinegar instead of milk, and rendered warm and stimulating by the addition of mustard, horse radish, or garlic.

CLYSTERS.

Emollient Clyster.—Take of linseed tea and new milk each six ounces. Mix them. If fifty drops of laudanum be added to this, it will supply the place of the anodyne clyster.

Laxative Clysters. Take of milk and water each six ounces, sweet oil or fresh butter, and brown sugar, each two ounces. Mix them. If two table spoonfuls of common salt be added to this it will be the purging clyster.

Carminative Clyster. Take of camomile flowers one ounce, aniseeds half an ounce. Boil to one pint. In hysteric and hypochondriac complaints, this may be administered.

Oily Clyster. To four ounces of the infusion of camomile flowers, add an equal quantity of sweet oil. This is beneficial in bringing off the small worms lodged in the rectum.

Starch Clyster. Take jelly of starch four ounces, linseed oil half an ounce. Liquify the jelly over a gentle fire, and then mix in the oil.

In the dysentery or bloody flux, this clyster may be administered after a very loose stool, to heal the ulcerated intestines and blunt the sharpness of the corroding humors. Forty or fifty drops of laudanum may be occasionally added.

Vinegar Clyster. This is made by mixing three ounces of vinegar with five of water gruel. This is peculiarly proper in inflammatory and putrid disorders, especially in the latter.

COLLYRIA, OR EYE WATERS.

Alum Eye Water. Take of alum half a drachm, beat it with the white of an egg till it forms a curd. This curd is an excellent application for severe

inflammations of the eyes, and the remaining water is efficacious as a wash. It allays the heat and restrains the flux of the humors. The curd should not be kept on more than three or four hours at a time.

Vitriol Eye Water. White vitriol half a drachm, rose water six ounces. Dissolve the vitriol in the water, and filter the liquor.

This, though simple, possesses considerable virtue. It is a useful application in weak, watery, and slightly inflamed eyes.

Lead Eye Water. Take of sugar of lead and sal ammoniac, each four ounces. Dissolve them in eight ounces of common water, to which forty drops of laudanum may be occasionally added.

CONSERVES.

Conserves are compositions of fresh vegetables and sugar, beaten together into a uniform mass.

Conserve of Red Roses. Take a pound of red rose buds, cleaned of their coverings; beat them well in a mortar, and add by degrees two pounds of double refined sugar in powder, making a conserve. After the same manner are prepared the conserves of orange peel, rosemary flowers, wormwood, the leaves of wood sorrel, &c.

The conserve of red roses is one of the most agreeable and useful preparations belonging to this class. A drachm or two of it, dissolved in warm milk, is ordered to be given as a gentle restraining in weakness of the stomach, and likewise in phthisical coughs and spitting of blood. It must be taken in large quantities, to have any considerable effects.

DECOCTIONS.

Decoction of Sarsaparilla. Take of fresh sarsaparilla root, sliced and bruised, two ounces, shavings of guaiacum wood one ounce. Boil over a slow fire in three quarts of water to one; adding towards the end, half an ounce of sassafras wood and three drachms of liquorice. Strain.

This is usually employed to remove the effects of mercury. It strengthens the stomach and restores flesh and vigor to the habits emaciated by the venereal disease. It may also be taken in rheumatism and all disorders proceeding from foulness of blood. Dose from a pint and a half to two quarts in the day.

Compound Decoction of Sarsaparilla. Take sarsaparilla root six ounces, the bark of sassafras root, shavings of guaiacum, and liquorice root, each one ounce; the bark of mezereon root three drachms. Digest in ten pints of water with a gentle heat for six hours; then boil the liquor down to one half, adding the bark of mezereon root towards the end of the boiling. Strain. The dose is the same as the above. This was formerly the Lisbon diet drink.

Compound Decoction of the Bark. Take of Peruvian bark and the Virginian snake root each three drachms. Boil them in a pint of water to one half. To the strained liquor add an ounce and a half of any aromatic water.

This is recommended as a proper medicine towards the decline of malignant fevers. The dose is four table spoonfuls every fourth or sixth hour.

DISTILLED WATERS AND SPIRITS.

By distillation of water from vegetable substances, it is frequently impregnated with their flavor and taste. This is owing to their essential oil being volatilized at the temperature at which water boils, and being dissolved in small proportion by the water condensed.

Distilled Water. Let water be distilled in very clean vessels until about two thirds of it have come over.

In nature no water is found perfectly pure. Spring or river water always contains a portion of saline matter, principally sulphate of lime. By distillation a perfectly pure water is obtained.

Orange Peel Water. Take of fresh orange peel two pounds. Pour upon it as much water as shall be sufficient to prevent any empyreuma, after ten pounds have been drawn off by distillation. After due maceration, distil ten pounds.

The same quantity of water is to be distilled in the same manner, from

—Six pounds of fresh flowers of the damask rose, to prepare damask rose water.

—Three pounds of peppermint, in flower, to prepare peppermint water.

—Three pounds of pennyroyal, in flower, to prepare pennyroyal water.

—One pound and a half of spearmint, in flower, for spearmint water.

—One pound of cinnamon bark, for cinnamon water.

To each pound of these waters add half an ounce of diluted alcohol.

Spirit of Caraway. Caraway seeds, bruised, half a pound; diluted alcohol, nine pounds.

Macerate two days in a close vessel; then pour on as much water as will prevent empyreuma, and draw off by distillation nine pounds.

In the same manner is prepared the same quantity of spirit, from

—One pound of cinnamon bark : spirit of cinnamon.

—One pound and a half of peppermint : spirit of peppermint.

—One pound and a half of spearmint : spirit of spearmint.

—Two ounces of nutmeg : spirit of nutmeg.

Other spiritous waters are prepared in a similar manner, and it is unnecessary to make particular observations on each.

DISTILLED, VOLATILE, OR ESSENTIAL OILS.

Volatile oils are prepared nearly in the same manner as the distilled waters, except that less water is to be added. The oil comes over with the water and is afterwards to be separated from it, according as it may be lighter than the water, and swim upon its surface, or heavier, and sink to the bottom.

According to these directions are prepared the volatile oils of aniseeds, fennel seeds, juniper berries, rosemary, lavender, peppermint, spearmint, pennyroyal, wintergreen, &c.

Volatile oils, medicinally considered, agree in the general qualities of pungency and heat; in particular virtues they differ as much as the subjects from which they are obtained, the oil being the direct principle in which the virtues of the several subjects reside. Thus the carminative virtue of the warm seeds, the diuretic of the juniper berries, the emmenagogue of the savine, the nervine of the rosemary, the stomachic of the mint, &c., are supposed to be concentrated in their oils. The more grateful oils are frequently made use of for reconciling to the stomach medicines of themselves disgusting. They are readily imbibed by pure dry sugar, and in this form may be conveniently exhibited. Ground with eight or ten times their weight of sugar, they become soluble in water, and may thus be diluted to any degree. They dissolve likewise in alcohol; the more fragrant in an equal weight, and almost all of them in less than four times their own quantity. Volatile oils should be kept in small bottles, closely stopped, in a cool place.

FOMENTATIONS.

Fomentations are generally intended either to ease pain by taking off ten-

sion and spasm; or to brace and restore the tone and vigor of those parts to which they are applied. The first of these intentions may generally be answered by warm water, and the second by cold. Certain substances, however, are usually added to water with a view to heighten its effects, as anodynes, aromatics, astringents, &c.

Anodyne Fomentation. White poppy heads, two ounces; elder flowers, half an ounce; water three pints. Boil to two pints. This fomentation is used for relieving acute pain.

Common Fomentation. Take tops of wormwood and camomile flowers dried of each, two ounces; water two quarts. Spirits may be added as required.

OINTMENTS, LINIMENTS, AND CERATES.

Yellow Basilicum Ointment. Yellow wax, white resin, and frankincense, each a quarter of a pound; melt them together over a slow fire; then add of hog's lard one pound.

Employed for cleansing and healing wounds and ulcers.

Emollient Ointment. Palm oil two pounds, olive oil a pint and a half; yellow wax half a pound, Venice turpentine, a quarter of a pound. Melt the wax in the oils, and then mix in the turpentine.

It may be used for anointing inflamed parts, &c.

Issue Ointment. Mix half an ounce of Spanish flies, finely powdered, in six ounces of yellow basilicum ointment.

This ointment is intended chiefly for dressing blisters in order to keep them open during pleasure.

Ointment of Sulphur. Lard four ounces, flowers of sulphur an ounce and a half, sal ammoniac two drachms, essence of lemon ten or twelve drops. Make them into an ointment.

This ointment rubbed upon the parts affected will generally cure the itch. It is both the safest and best application for that purpose, and when made in this way has no disagreeable smell.

Goulard's Cerate. Water of acetated lithrage, two ounces and a half, yellow bee's wax, four ounces, olive oil, nine ounces, camphor half a drachm. Rub the camphor with a little of the oil, and as soon as the mixture begins to thicken, pour in by degrees the water of acetated lithrage, and stir it constantly till it be cold; then mix in the camphor previously rubbed with the oil.

This ointment has been rendered famous by the commendations of M. Goulard, a French surgeon. It is an excellent cooling ointment, of great use in many cases.

Tar Ointment. Take of tar five parts; yellow wax, two parts. Melt together.

This has been successfully employed against foul ulcers, and some cutaneous affections, particularly scald head.

Ointment of Stramonium. Fresh leaves of stramonium, bruised, five pounds lard fourteen pounds. Let them simmer together over a gentle fire, till the leaves become crisp and dry. Then press out the lard, return it into the vessel when cleansed, and add to every pound of the compound, two ounces of yellow wax (beeswax). Set the whole on the fire: when the wax has melted, remove the vessel and let it rest while the contents gradually cool, that the impurities may subside.

This ointment has been found to afford relief in external inflammations

and piles. It is also highly beneficial in burns and to allay the swelling of a cow's udder.

Liniment for Burns. Equal parts of sweet oil, of fresh drawn linseed oil, and lime-water : shake them well together, so as to form a liniment.

This is found to be an exceedingly proper application for recent scalds or burns.

Volatile Liniment. Sweet oil one ounce, spirit of hartshorn half an ounce. Shake them together.

It is said that in the inflammatory quinsy, a piece of flannel moistened with this liniment and applied to the throat, to be renewed every four or five hours, is one of the most efficacious remedies and seldom fails to carry off the complaint.

Liniment for the Piles. Take of emollient ointment two ounces, liquid laudanum half an ounce. Mix these ingredients with the yolk of an egg, and work them well together.

Simple Cerate. Take of oil six parts, white wax three parts, spermaceti one part. Melt the wax and spermaceti together, then add the oil, stirring until the whole is cool.

PILLS.

Medicines which operate in a small dose, and whose disagreeable taste or smell makes it necessary that they should be concealed from the palate, are more commodiously exhibited in this form. No medicine, however, which is intended to operate quickly, ought to be made into pills, as they often lie for a considerable time on the stomach before they are dissolved so as to produce any effect. One pill is generally calculated to weigh about five grains.

Deobstruent Pill. Rust of iron, socotorine aloes, and myrrh, in powder, of each a drachm. Make into forty pills, of which two are to be taken morning and evening.

These pills are of excellent service in obstructions of the menses.

Compound Pills of Assafœtida. Assafœtida, galbanum, and myrrh, each eight parts, purified oil of amber one part. Beat them into a mass with simple syrup.

The pills are designed for anti-hysterics and emmenagogues, and are well calculated for answering these intentions. From two to four may be taken every night or oftener.

Pills of Opium. Opium one part, extract of liquorice seven parts, Jamaica pepper two parts. Soften the opium and extract separately with diluted alcohol, and having beat them into a pulp, mix them : then add the pepper, reduced to powder, and form the whole into a mass.

This affords a form under which the exhibition of opium may be concealed from the patient. Each pill contains about half a grain of the opium.

Another. Take of Castile soap eight parts, camphor six parts, opium four parts. The several articles being separately powdered, mix, and beat them into a mass.

Stomachic Pill. Extract of gentian two drachms, powdered rhubarb, and vitriolated tartar each one drachm, oil of mint thirty drops, simple syrup a sufficient quantity.

Three or four of these pills may be taken twice a day, for invigorating the stomach and keeping the body open.

Compound Pill of Rhubarb. Rhubarb in powder one ounce, socotorine

aloes six drachms, myrrh half an ounce, volatile oil of peppermint half a drachm. Make them into a mass with a sufficient quantity of syrup of orange peel.

This is a moderate laxative, much employed, especially in dyspeptic affections, to obviate costiveness and gently stimulate the intestines. Two pills are taken at bed-time.

Pills for the Jaundice. Take of Castile soap, socotorine aloes and rhubarb each one drachm. Make them into pills with a sufficient quantity of syrup or mucilage.

These pills, with the assistance of proper diet, will often cure the jaundice. Five or six of them may be taken twice a day, more or less, as is necessary to keep the body open.

PLASTERS.

Plasters ought to be of a different consistence, according to the purpose for which they are intended. Such as are to be applied to the chest or stomach ought to be soft and yielding; while those designed for the limbs should be firm and adhesive. Plasters are composed chiefly of oils and unctuous substances, united with oxides or powders, into such a consistence that the compound may remain firm in the cold without sticking to the fingers; that it may be soft and pliable in the heat of the human body; yet so tenacious as readily to adhere both to the parts on which it is applied and the substance on which it is spread.

Common Plaster. Take of lithrage one part, olive oil two parts. Having added some water, boil them, constantly stirring until the oxide and oil unite into a plaster.

This plaster is generally applied to slight wounds and excoriations of the skin. It keeps the part soft and warm and defends it from the air, which is all that is necessary. Its principal use, however, is to serve as a basis for other plasters.

Adhesive Plaster. Common plaster two parts, Burgundy pitch one part. Melt them together and stir them well till cold.

This plaster is principally used for keeping on other dressings and for retaining the lips of a wound together.

Blistering Plaster. Take of yellow wax, pine resin, olive oil, each two parts, cantharides, in powder, three parts. To the wax, resin, and oil, previously melted together, add the cantharides, carefully stirring the whole until cool.

Blistering plasters prove highly disagreeable to some persons by occasioning strangury. As a substitute plaster, a small quantity of blistering salve may be mixed with the Burgundy pitch plaster, and laid over the part affected, suffering it to remain as long as it will stick. This will act for many days, and seldom fails to remove pain, or slight obstructions.

Anodyne Plaster. Melt an ounce of adhesive plaster, and while it is cooling mix with a drachm of powdered opium and the same quantity of camphor, previously rubbed up with a little oil.

This plaster will generally give ease in pains, especially those of the nervous kind.

Stomach Plaster. Gum plaster half a pound, camphorated oil, an ounce and a half, Cayenne pepper one ounce. Melt the plaster and mix it with the oil; then sprinkle in the pepper, previously reduced to fine powder.

An ounce or two of this plaster, spread upon soft leather, and applied to

the region of the stomach, will be of service in flatulencies arising from hysterical and hypochondriac affections.

Warm Plaster. Take of gum plaster one ounce, blistering plaster two drachms. Melt them together over a gentle fire.

This plaster is useful in the sciatica and other fixed pains of the rheumatic kind: it ought to be worn some time, and renewed twice a week.

SYRUPS.

Syrups are solutions of sugar in water, either pure or containing other substances dissolved. They are seldom active medicines, but are principally designed to render others more pleasant. The proportion of sugar with which they are made generally is about a pound to a half pint.

Simple Syrup. Take of sugar fifteen ounces, water half a pint. Boil a little so as to form a syrup.

Syrup of Ginger. Ginger roots, bruised, three ounces, boiling water four pounds, double refined sugar seven pounds and a half. Macerate the ginger in the water for twenty-four hours in a close vessel; then to the strained liquor add the sugar in powder so as to make a syrup.

This is an agreeable and moderately aromatic syrup, impregnated with the flavor and virtues of the ginger.

Aromatic Syrup of Rhubarb. Take of rhubarb, bruised, five drachms, cloves and cinnamon each half an ounce, nutmegs two in number, water one pint. Digest and evaporate till the liquor is reduced to half a pint, and add one pound of sugar and half a pint of spirits: then boil a little to form a syrup.

This is an excellent carminative and laxative.

Syrup of Orange Peel. Orange peel six ounces, boiling water three pounds, sugar four pounds.

This is a very elegant and agreeable syrup.

Syrup of white poppies. Take dried poppy heads, sliced and freed from seeds, two pounds, boiling water thirty pounds, refined sugar four pounds. Macerate for twelve hours, then boil till one third of the liquor remains. Strain, and again boil this to the consumption of one half. Lastly, add sugar so as to form a syrup.

This syrup is given to children in doses of two or three drachms, answering all the intentions of opiates.

TINCTURES, ELIXIRS, &c.

Rectified spirit is the direct menstruum of the resins and essential oils of vegetables, and totally extracts these active principles from sundry substances, which yield them to water, either not at all, or only in part.

It dissolves likewise those parts of substances in which their peculiar smells and taste reside. Hence the tinctures prepared with rectified spirits form a useful and elegant class of medicines, possessing many of the most essential virtues of simples, without being clogged with their inert or useless parts.

Water, however, being the proper menstruum of the gummy, saline, and saccharine parts of medicinal substances, it will be necessary in the preparation of several tinctures to make use of a weak spirit or alcohol diluted with water.

Tincture of Kino. Digest two ounces of gum kino in a pint and a half of brandy for eight days: afterward strain it for use.

This tincture is a good astringent medicine. With this view half an ounce or more of it may be taken three or four times a day.

Tincture of Opium. Opium two ounces, spiritous aromatic water, and mountain wine of each ten ounces, dissolve the opium in the wine with a gentle heat, frequently stirring it; afterwards add the spirit and strain off the tincture.

As twenty-five drops of this tincture contain about a grain of opium, the common dose may be from twenty to thirty drops.

Hiera Picra. Take of socotorine aloes in powder one ounce, Virginian snake root and ginger each two drachms. Infuse in a pint of mountain wine and half a pint of brandy for one week, frequently shaking the bottle.

This is a safe and useful purge for persons of a languid and phlegmatic habit; but it is thought to have a better effect taken in small doses as a laxative. The dose as a purge is from one to two ounces.

Tincture of Cantharides. Cantharides bruised one drachm, diluted alcohol one pound. Digest two days and filter through paper.

This tincture contains the active principle of the fly. It is applied externally as a stimulant and rubefacient, and is sometimes given internally, in doses of from ten to twenty drops as a diuretic. It has frequently cured the diabetes.

Tincture of Aloes and Myrrh. Myrrh one ounce, alcohol a pound and a half, water half a pound. Digest four days and lastly add socotorine aloes and saffron each two ounces. Digest again for three days and pour off the tincture.

This may be considered as being the Elixir Proprietatus of Paracelsus. It has long been in repute as a warm stimulant and aperient. It strengthens the stomach and other viscera, cleanses the first passages from tenacious phlegm, and promotes the natural secretions in general. Its continued use has frequently done much service in cachectic cases, jaundice, uterine obstructions, and other similar disorders. Dose from one to two drachms twice a day.

Stomachic Elixir. Gentian root two ounces, orange peel one ounce, Virginian snake root half an ounce. Bruise and infuse for three or four days in two pints of French brandy.

This is an excellent stomach bitter. In flatulencies, indigestion, want of appetite, and complaints of this character, a small glass of it may be taken twice a day.

Paregoric Elixir. Take of opium and benzoic acid each one drachm, camphor two scruples, spirits and water each one pint. Infuse for four or five days frequently shaking the bottle.

This is an agreeable and safe way of administering opium. It eases pain, allays tickling coughs, relieves difficult breathing, and is useful in many disorders of children, particularly the whooping cough. Dose to an adult from fifty to an hundred drops.

Tincture of Foxglove. The dried leaves of foxglove one ounce, diluted alcohol eight ounces. Digest. Dose ten drops gradually increased.

Tincture of Colombo. Two ounces and a half of the root powdered to two pounds and a half of diluted alcohol. Dose three or four drachms three times a day.

Tincture of Assafœtida. Assafœtida four ounces, alcohol two pounds and a half. Dose from ten to fifty or sixty drops in hysteria.

Elixir of Vitriol. Take of alcohol two pounds, sulphuric acid six ounces.

Drop the acid gradually in the alcohol. Digest the mixture with a very gentle heat in a close vessel for three days, and then add cinnamon bark one ounce and a half, ginger one ounce. Digest again for six days and then filter.

This is a valuable preparation of elixir vitriol. It may be given in doses of ten or thirty drops three times a day.

Tincture of Black Hellebore. Take root of black hellebore four ounces, cochineal in powder half a drachm, spirits two pounds and a half. Digest seven days.

This is an excellent preparation of hellebore when designed for an alterative. It has also been found by experience to be particularly serviceable in uterine obstructions. In sanguine constitutions where chalybeates are hurtful it is said that it seldom fails of exciting the menstrual evacuations, and removing the ill consequences of their suppression. A tea spoonful of the tincture may be taken twice a day in warm water.

Essence of peppermint. Oil of peppermint one ounce, alcohol a pound and a half. Digest till the oil is blended with the alcohol.

Essence of Spearmint is made in the same manner with half the quantity of the oil.

Compound Tincture of Lavender. Take of oil of lavender six ounces, oil of rosemary two ounces, cinnamon one ounce, cloves two drachms, nutmeg half an ounce, red sanders in shavings three drachms, alcohol four pounds. Digest ten days and filter.

This is a grateful cordial in common use, as relieving languor and faintness. From ten to an hundred drops may be taken on sugar.

MEDICATED WINES.

Chalybeate Wine. Take of purified filings of iron or rust of iron one ounce, white wine sixteen ounces. Digest for a month often shaking the vessel, and then filter.

The dose is from a drachm to half an ounce twice or thrice a day in menstrual obstructions and green sickness.

Wine of Opium (commonly called "Sydenham's laudanum"). Opium two ounces, cinnamon and cloves each one drachm, wine one pint. Macerate for ten days and strain.

Dose from ten to fifty drops.

Antimonial Wine. Glass of antimony, reduced to a fine powder, half an ounce, Lisbon wine eight ounces. Digest without heat for three or four days, shaking it occasionally. Then filter.

The dose varies according to the intention, as an alterative and diaphoretic it may be taken from ten to fifty or sixty drops. In a large dose it generally proves cathartic or excites vomiting.

WHEYS.

Alum Whey. Boil two drachms of powdered alum in a pint of milk, till it is curdled, then strain out the whey.

This whey is beneficial in immoderate flow of the menses and in diabetes. The dose is two, three, or four ounces, according as the stomach will bear it three times a day.

Mustard Whey. Take milk and water each one pint, bruised mustard seed an ounce and a half. Boil together till the curd is perfectly separated. Strain out the whey.

This is by no means the least efficacious way of exhibiting mustard. It warms and invigorates the habit and promotes the different secretions. Hence in the low state of nervous fevers it will often supply the place of wine. It is also of use in the chronic rheumatism, palsy, dropsy, &c. The addition of a little sugar will render it more agreeable. Dose a tea cupful four or five times a day.

MISCELLANEOUS

AND

PATENT COMPOUNDS.

Godfrey's cordial. Opium eight grains, molasses eight ounces, alcohol four ounces, oil sassafras three drops, distilled water one pint. Digest three days. Dose two drachms to an infant.

This medicine is much used as an anodyne for infant children.

British Oil. Sulphurated oil one ounce, oil of petroleum or rock oil, half an ounce, purified oil of amber two drachms, oil of turpentine four ounces. Mix.

Dose from fifteen to twenty drops morning and evening.

Harlæm Oil. Take sublimed sulphur two ounces, linseed oil one pound, oil of amber two ounces, oil of turpentine a sufficient quantity. Boil the sulphur in the linseed oil until it is dissolved, then add the oil of amber, and as much of the spirits of turpentine as shall make it of a proper consistence.

Dover's powder. Pulverized ipecac and opium of each one part, sulphate of potash eight parts. Triturate them together into a fine powder. The medium dose is fifteen grains. It is celebrated as sudorific and extensively used.

Steer's Opodeldoc. (The hard kind.) Windsor soap, the best quality two and a half pounds, oil of rosemary five drachms, oil of thyme five drachms, camphor seven and a half ounces, water of ammonia one and a half pounds, water a pound and a quarter, alcohol eleven pints. Dissolve the soap and camphor in the alcohol, with a gentle heat, and when dissolved add the water of ammonia and water, and when cooling the oils. The bottles must be filled while lukewarm, and not sealed up until the opodeldoc is perfectly congealed.

Bard's Opodeldoc. Venetian soap two ounces, camphor gum one ounce, brandy one pint. Dissolve the soap in the brandy by a gentle heat and after its solution the camphor is to be added.

Canada Liniment. Water of ammonia, olive oil, oil of turpentine, oil of peppermint, and alcohol, each one ounce. Mix.

Useful for chronic rheumatism. It is one of the neatest and most efficient liniments with which we are acquainted.

Lee's pills. Gum gamboge one ounce, aloes half an ounce, scammony half a drachm, Venetian soap two drachms, nitrate of potash one drachm, tincture of aloes with myrrh a sufficient quantity to form a pill mass.

Hooper's pill. Aloes one ounce, myrrh half an ounce, carbonate of iron and calcined sulphate of iron each three drachms, pulverized cloves half a drachm, alcohol quantum sufficient. Make into pills of common size. Dose from three to four.

Sulphuric Liniment. Sulphuric acid three drachms, oil turpentine four ounces, sweet oil ten ounces. Mix.

Used for itch.

English Itch Ointment. Sulphur two ounces, white hellebore pulverized, and impure carbonate of potash each two drachms, oil of lemon twenty drops, lard two ounces. Make into an ointment.

Cajeput Opodeldoc. Almond soap two ounces, alcohol one pint, camphor one ounce, cajeput oil two ounces. First dissolve the soap and camphor in the alcohol and when the solution is about to congeal add the oil of cajeput. Shake them well together and put into bottles to congeal.

This composition is a great improvement on the opodeldoc in general use, and in cases of rheumatism, paralytic numbness, chilblains, enlargement of the joints, and indolent tumors, where the object is to rouse the action of the absorbent vessels and to stimulate the nerves, it is a very valuable external remedy.

Chalk Mixture. Take of prepared chalk one ounce, refined sugar half an ounce, mucilage of gum arabic two ounces. Rub them together and add by degrees two pints of water, and two ounces of spiritous cinnamon water.

This is a very elegant form of exhibiting chalk, and is a useful remedy in diseases arising from or accompanied with acidity of the stomach, and particularly in diarrhœa and dysentery. It may be taken to the extent of a pint in the course of a day.

Black Drop. Opium half a pound, vinegar three pints, nutmeg an ounce and a half, saffron half an ounce, boil to a proper consistence and add four ounces of sugar and one fluid ounce of yeast. Digest seven weeks; then place it in the open air till it becomes a syrup. Decant, filter and bottle it up, adding a little sugar.

Dose from five to ten drops.

Gout Cordial. Cardamon seeds, and caraway seeds, bruised each two ounces, Turkey rhubarb an ounce and a half, gentian root three fourths of an ounce. Mix and infuse in a quart of white brandy for a fortnight. Dose a table spoonful with an equal quantity of water, to be taken every third day.

DOMESTIC PHARMACOPŒIA.

The list of medicinal preparations which follows, comprises all my favorite *compound* remedies; together with many gathered in the course of a long life, or selected from the successful practice of other physicians. None of these are infallible in all cases, although many of them properly employed, will, I venture to affirm, fulfil all reasonable expectations that can be reasonably entertained from medicine. But good medicine will

frequently disappoint expectation; when then this happens, however, before we discard or blame the means, let us satisfy ourselves that they have not been misapplied; for more depends upon a *correct application*, than upon the specific virtues of any remedy; and sagacity and skill to direct, constitute the great secret of success in practice.

Many of the recipes here given may be considered of little consequence or even frivolous. But to the discerning practitioner all of them will afford *valuable hints*, which we may improve with advantage.

FAVORITE PREPARATIONS.

Tonic Tincture—32 gallons. In thirty-two gallons of good sound cider, infuse five pounds of the inner bark of white oak, pulverized; eight pounds of horseradish root, bruised; and three pounds of Seneca snake root bruised. Cover it and let it stand in a warm place, or over a gentle heat, not exceeding blood heat, for six days. Then strain the liquor off in a clean cask, and add three pounds of the carbonate or rust of iron, and two ounces of the oil of cloves decomposed in alcohol.

Let this now stand for two or three weeks, shaking it up occasionally, and not entirely excluding the air; when it will be sufficiently prepared to draw off into bottles or it may remain in the cask.

To every bottle of this tincture add half an ounce of Turlington's balsam of life. Shake them together till they are incorporated, when the composition is ready for use.

Dose from one-third to two-thirds of a common wine glassful, three times a day, before meals.

In all cases of debility and weakness of blood, in consumptions, dropsy, long continued agues, obstructed menses, &c., this tonic tincture will be found an invaluable medicine.

[*Another.* Take eight gallons sound cider, one pound and a quarter of horseradish root, Seneca snakeroot twelve ounces, carbonate of iron twelve ounces, Cayenne pepper one ounce, golden seal eight ounces, inner bark of white oak a pound and a quarter. Let them stand together in a cask for ten or twelve days, shaking them occasionally, when the tincture may be drawn off and used. It should never be used by females during pregnancy nor at that period commonly called the change of life. I prefer this preparation to the one given above.]

Mother's Cordial—1 gallon. Take one pound of the partridge berry vine or squaw vine, dried; and one fourth of a pound of high cranberry or cramp bark. Boil in two gallons of water to three quarts; strain and add one quart of brandy, and one pound of sugar.

Dose, in the latter stages of pregnancy, half a wine glassful every night on going to bed, in a little warm water. The dose may be increased to a gill, if necessary, to relieve cramps and pain.

This is an inestimable cordial for pregnant women, and should be used in all cases, for at least one or two weeks previous to confinement, as a preparatory.

[This may appear novel to some; but a female who has once used this medicine, and especially if she be in delicate health, will never omit the timely use of this valuable cordial. I owe much of my success in midwifery to the use of this article.]

Female Strengthening Syrup. Take one fourth of a pound of comfrey root dried; two ounces of elecampane root; and one ounce of hoarhound. Boil from three quarts to three pints; strain and add while warm, half an ounce of beth root, pulverized; a pint of brandy, and a pound of sugar.

Dose from half to two-thirds of a wine glassful three or four times a day.

This is used in female weakness, bearing down of the womb, fluor albus, debility and relaxation of the genital organs, barrenness, &c.

[*Anti-Mercurial Syrup.* Take twelve pounds of good American sarsaparilla, eight pounds guaiac chips, two pounds blue flag, one pound pricklyash bark, one pound and a half liquorice, and six ounces and a half stramonium seeds. These must be broken up and their strength obtained by boiling in two or three waters, forming ten gallons of the decoction, to which is to be added, when cold, eight gallons of molasses and five ounces of the oil of sassafras, when the whole is to be well shaken together, and set one side for use.]

This medicinal preparation, taken in proper doses, operates as an alterative and detergent; a diaphoretic, diuretic, and laxative; an antispasmodic and anodyne; and in proper cases, as a stomachic and emmenagogue. Generally expressed, it increases all the secretions and excretions, and excites action in the glands in a particular manner. From these principles its effects may be deduced.

The diseases to which it is applicable are pointed out in the course of this work.

The dose must vary greatly in different persons, some being able to bear less than a sixth part of the quantity that others can. Those persons especially whose blood is weak and watery, require a very small proportionate dose. The average dose for a healthy adult is a common wine glass half full (about two-thirds of an ounce), increasing it to two-thirds of a wine glassful, according to its effects. It should be taken three times a day, fasting, or about half an hour before meals.

An over dose will produce a considerable dryness in the fauces, and a temporary dimness of the sight, which will be perceived on attempting to read. A slight dimness is of no consequence, and only serves to show the proper effect of the medicine; but more than this would not be advisable. The proper dose produces no inconvenient effects, or unpleasant feelings. Under its operation, no restriction in diet is required, or abstinence from the common business vocations; ardent spirits, however, must be abstained from. The pores being opened rather more freely, the liability to taking cold is somewhat increased; but it produces no deleterious effects, and is only injurious from its retarding the cure. This invaluable preparation has, in my practice, saved many lives that were deemed past all hope.

Anodyne Wash—4 gallons. Take fifteen pounds of blood beets, sliced; boil to two gallons, and strain. Then add, while warm, one pound and a half of sal ammoniac; and half a pound of opium. Stir it occasionally, till they are dissolved; when the whole may be strained; add to it two gallons of proof spirits.

A little spirits of lavender may be added to give it a flavor.

This will be found a valuable cooling and anodyne application in all cases of inflammation, bruises, pain, &c.

[In preparing this wash the beets may be omitted without diminishing the value of the preparation.]

Children's Cordial. Two ounces each of pink blows, smellage root, and peurisy root; boil to one quart; strain, and add one quart of fourth proof brandy, and one pound of sugar.

Dose for an infant a tea spoonful, repeating if necessary.

For the colics, fits, green stools, &c., of children, this is a most excellent remedy.

Chalk Julep. Prepared chalk four ounces, rhubarb one ounce, pour upon

them one quart of hot water. Then add half an ounce each of essence of peppermint and paregoric. Let it steep a short time, and after it has settled, decant it off and bottle it up.

Dose for an adult from one to two table spoonfuls.

In dysentery and diarrhœa, proceeding from acidity in the first passages, this will be found of superior efficacy.

Clove Jelly. Take two pounds of best English glue, or, which is preferable, an equal quantity of calves' feet jelly: dissolve it in two quarts of water; and add three pounds of refined sugar, half an ounce of oil of cloves, and an ounce of balsam of life. Incorporate them well together, and let it cool, when it becomes a jelly.

Dose a piece the size of a hickory nut, four or five times a day.

This may be taken with advantage in cases of a weak stomach, general debility, gleet, seminal weakness, &c.

Sal Æratus and Rhubarb Mixture. Take three parts of sal æratus and one of rhubarb, finely pulverized. Mix.

A tea spoonful taken daily, dissolved in a tumbler of cold water and sipped up in the course of the day, is inferior to no other preparation in relieving acidity in the stomach.

[It may be put into some kind of drink and sweetened, or something put with it in order to give it to children. For children in looseness of the bowels and green stools, given in small and repeated doses, it is one of the best remedies I ever used.]

Stramonium Tincture, or Green Drops. Take one quart of stramonium seeds, pulverized; boil in four quarts of water to two quarts; strain, and add two quarts of spirits.

Dose from ten to twenty-five drops, two or three times a day.

For Costiveness. Take two ounces of rhubarb, and one ounce of rust of iron, infuse in one quart of wine.

Dose half a wine glass every morning.

Conserve for Coughs. Take three parts of fresh comfrey root, and one part of green Indian turnip; bruise together into a fine paste, and add two parts of refined sugar. Mix.

A table spoonful of this may be eaten three or four times a day, for coughs, &c.

Worm Syrup. Take one ounce of aloes, half an ounce of assafœtida, and four ounces of snakehead, dried; boil the snakehead to one quart, and add the aloes and assafœtida, and a quart of molasses.

Dose for a child, a tea spoonful every half hour till it operates as physic, will bring away the worms in a slimy mass.

Healing Wash. Boil half a pound of witch hazel bark to a decoction of a quart, and add three or four ounces of Turlington's balsam of life, and (at pleasure) a drachm of white vitrol. Shake them well together.

For cleansing and healing excoriated surfaces. and correcting acrimony and putridity this is second to none. It is particularly serviceable as an injection in gonorrhœa, and as a wash for venereal ulcers.

The Green Salve. To three pounds of lard add a quarter of a pound of beeswax, two ounces of verdigris finely pulverised, and one pound of Scotch snuff. Melt and stir till cold.

This is a most excellent salve for cleansing and bringing life and action into foul and ugly ulcers. I find great use for it.

The Bittersweet Ointment. Take equal parts of plantain leaves and root,

bittersweet bark and spikenard root, boil out the strength, strain, and make it into an ointment with hogs lard.

This is a valuable ointment, and is frequently recommended in this work. It softens and relieves a caked and inflamed breast in a remarkable manner, and may be applied with advantage.

Iron and Myrrh Pills. Take rust of iron, three parts, and pulverized myrrh, one part. Make into a mass with Castile soap and molasses.

Dose two or three, twice a day. They are used for the same purpose as the tonic tincture.

Fir Pills. Take balsam of fir, and mix in enough of foxglove, pulverized to make it of a proper consistence for pills.

Dose two or four twice a day. These pills will often cure a gleet, and are generally useful in completing the cure of gonorrhœa.

For Epileptic Fits of the Nervous kind. Take one ounce each, of gum myrrh and flowers of sulphur, half a gill of spirits of turpentine, and one gill of oil of almonds, or of sweet oil. Simmer all together two or three hours, until it becomes red. Then drain the liquid off from the sediment, and bottle it up.

Dose from fifteen to thirty drops twice in twenty-four hours for an adult, and in proportion to children.

[*Anti Bilious Pills.* Take gum aloes, one pound, gum gamboge half a pound, euphorbia (or as it is called, white physic) half a pound, mandrake root half a pound, salt petre two ounces, and ginger two ounces. Form a mass for pills with a mucilage of gum arabic, and make into common sized pills.

Dose for an adult from three to five, lessening the number for children according to their age. No family or individual should be without these pills; they are both safe and thorough in their operation, carrying off all morbid secretions of the bowels, thereby cleansing the whole system.

Cough Drops. Take half a pound of lobelia, herb and seeds, one pound and a half of blood root, half a pound of valerian, half a pound of liquorice root, and half an ounce of opium, all made fine. Put this into one gallon of brandy and one of water, let it stand for some time, then press out the liquor and add half a pint of molasses. Keep it closely corked.

Dose fifteen or twenty drops for an adult three or four times a day. Five, eight or twelve drops may be given to children according to their age. If the cough be very much confined, they should be taken five or six times a day. These drops are an efficient medicine in whooping cough, and should be taken six times a day in a little flax seed or slippery-elm tea.]

MISCELLANEOUS PREPARATIONS

Asthmatic Tincture. Take half a pound of quick lime, slack it by turning on two quarts of hot water, and while it is slacking and boiling, stir in two spoonsful of tar; mix them well together and then let it settle. Take half a pound of wild turnip, half a pound of milk weed roots, fresh, a small handful of lobelia; bruise and infuse them in two quarts of wine, in a sand heat, for twenty-four hours; then press and strain and add to it the lime-water and bottle it for use.

Dose a wine glassful three times a day.

This is useful in coughs, asthmas, consumptions, hysterics, spasms, &c.

Dr. Hull's Genuine Bilious Physic. Take eight ounces of aloes, one ounce each of mace, myrrh, cinnamon, cloves, saffron, and ginger, four ounces of the dried leaves of the garden sunflower, or of the wild sunflower.

Pulverize the articles separately, and mix them thoroughly. Dose a tea spoonful.

The efficacy of this celebrated physic in the cure of bilious colic, is well known. This is the first genuine recipe of it ever published. Several spurious ones have been circulated, but in them the two active articles, saffron and sunflower were omitted.

Dr. Young's Deobstruent Pill. Take aloes in fine powder, two ounces, castile soap and the best of flake manna, of each one ounce; oil of aniseed a sufficient quantity to reduce it into a mass for pills. Make twelve pills out of each drachm; one of which may be taken at any time of the day, occasionally as a laxative, to resolve and carry off foul viscid matter from the bowels, thereby obviating costiveness, and preventing the numerous evils incident to it. They produce the most salutary effects in cases in which the bile is inert. Their operation is remarkably gentle.

Strengthening Syrup. Take equal parts of balm of gilead buds, black cherry bark, black alder bark or berries, colombo root, dogwood bark, unicorn root, and whitewood bark. Boil all together to a syrup, strain and sweeten, and add spirits enough to preserve it from fomentation, and take as the stomach will bear.

This is an excellent stomachic, and strengthens the system generally.

Expectorant Pills. Take of bloodroot, mandrake and Indian hemp, each one ounce; lobelia, the seeds and leaves, a quarter of an ounce, Indian turnip, one ounce, all pulverized fine; opium, half an ounce, and liquorice extract half an ounce: all to be formed into a mass for pills, with the mucilage of flaxseed or slippery elm and honey, or molasses, and make into common sized pills.

Dose one pill once in six hours, for coughs, colds, consumptions, &c.

Vegetable Bilious Pills. Take mandrake eight ounces, blood-root four ounces, lobelia leaves and seeds four ounces, gamboge eight ounces, all finely pulverized; one fourth of an ounce of the oil of peppermint, or aniseed, and as much molasses as will form into a mass for pills. Dose from two to six pills.

Anodyne Sudorific Pills. Take opium one ounce; ipecac, one ounce; pleurisy root, one ounce; Indian turnip one ounce; camphor gum, half an ounce; all to be pulverized fine, and formed into a mass with the mucilage of gum arabic, and made into common sized pills. One pill may be taken every four or five hours.

They ease pain, and create a moderate perspiration; and are good in all cases where anodynes and sudorifics are proper.

Emetic Powders. Lobelia the leaves and seeds, Indian hemp the roots, each two ounces; blood root half an ounce, and anise, caraway, or fennel seed, or angelica, or calamus root added; all pulverized and mixed. One tea spoonful to be put into a cup of warm water, or gruel and sweetened, to be taken at a dose. It may be repeated until it operates.

For a quick Bilious Purge. Take sixteen parts each of gamboge and mandrake; eight parts each of bloodroot and lobelia seeds, pulverized; and one part of oil of lobelia. Mix well with mucilage of gum arabic, for pills. Dose, for a purge, from three to four; for a purge and emetic, from five to six.

Cathartic Powders. Take mandrake root and blue violet, each two parts; blood root, one part; all to be mixed. Dose half a tea spoonful two or three times a day.

They remove costiveness, indigestion, and correct the stomach and bowels.

Tonic Powders. Take equal parts of golden seal, colombo root, and rust of iron, all finely pulverized. Mix. Dose from five to twelve grains three times a day.

This is a powerful tonic in cases of debility.

Sudorific Powders. Take pleurisy root, and Indian turnip, each two ounces; blood root, one ounce; pulverize and mix.

Dose half a tea spoonful once an hour; to be given in fevers, after the stomach and bowels are cleansed.

Bone's Bitters. 1 quart—Take unicorn root, one ounce; blood root, one fourth of an ounce; gensing, half an ounce; tamarisk bark, one ounce; nanny bush bark, one ounce; devil's bit, half an ounce; rue, one fourth of an ounce; seneca snake root, sassafras bark, and golden seal, each one fourth of an ounce. Digest in one quart of best Jamaica spirits, in a sand heat, for twenty-four hours; then strain. Dose a tea spoonful three times a day, in water.

This bitter is celebrated for its fine restorative and strengthening qualities, in indigestion, rheumatism, dropsy, pain in the breast, &c.

For Epilepsy, and Nervous Fits. Take one ounce of gum myrrh, pulverized; one ounce of flowers of sulphur; half a gill of spirits of turpentine; and a gill of oil of almonds, or of sweet oil. Simmer together two or three hours, until it becomes red. Then drain it off from the sediment, and bottle it up. Dose from fifteen to thirty drops, twice in twenty-four hours, for an adult.

Snuff for Catarrh in the Head. Take colt's foot, snakeroot or asarabacca, and bayberry bark, each two parts; and blood root, one half part; pulverize fine, and mix. If the wandering milkweed be added to this, it cures headache.

Colic Powders. Take two table spoonsful of pleurisy root, and a tea spoonful of Cayenne pepper: pulverize and mix. In colics, steep the whole in half a pint of water, sweeten, and take it at a dose. It may be repeated according to circumstances.

Or, which is better, equal parts of pleurisy root and crawley root, pulverized, mixed and given in powder.

For Dysentery. (Dr. Perkin's last remedy, so called.) Take good vinegar, and as much salt as it will dissolve; add one table spoonful of it to four of hot water, and let it be taken by spoonsful, as fast and as hot as it can be swallowed. This dose is to be continued once in two hours till it operates as physic. It is said to be a sovereign remedy in dysentery.

Jaundice Bitters. Take the bark of the roots of whitewood, boxwood, or dogwood, black cherry, and prickly ash, each one handful; horseradish roots and mustard seed, each two ounces; and a handful of hops; all to be infused in one gallon of cider, or of equal parts of wine and water. Dose half a wine glassful, three times a day.

Ague Bitters. In one quart of wine, infuse one table spoonful of blood root, two of wild turnip, and two tea spoonsful of mandrake, all pulverized fine. Dose a table spoonful as often as the stomach will bear it.

Stoughton's Bitters. Take orange peel, one pound; gentian root, three pounds; camwood, two pounds; pulverize and infuse them in six gallons of spirits; and after shaking it well for five or six days, decant, and bottle it up for use.

Female Bitters. Take of crane's bill, four ounces; comfrey, four ounces; beth root, four ounces; motherwort roots, four ounces; whitewood bark,

four ounces ; orange peel, one ounce ; cinnamon, half an ounce ; all bruised and infused in three quarts of good wine, and sweetened.

This is very useful in all cases of female debility, fluor albus, and immoderate flow of the menses, &c.

Anodyne Carminative Drops. Take angelica, or motherwort roots, four ounces ; valerian, two ounces ; calamus, half an ounce ; anise, dill, and fennel seed, one ounce each, or two ounces of either ; catnip blows or leaves, and motherwort, each a large handful ; pleurisy root, four ounces. Infuse the whole in two quarts of brandy, or good common spirits ; and digest in a moderate heat for twenty-four hours. Then press out and strain the liquid, and add to it half a pound of loaf sugar. When settled, bottle it for use.

Dose for children, from ten to sixty drops, according to the age : for adults from one to four tea spoonsful in a cup of warm tea. It may be repeated once in four or six hours. It eases pain, creates a moderate perspiration, and produces refreshing sleep ; is good for restless children, removes flatulency, and wind colic ; and is useful in hysteric and nervous affections, female debility, &c.

Bathing Drops. To one quart of alcohol, add one ounce of hemlock oil ; one ounce of gum guaiacum, pulverized ; one ounce of gum myrrh ; two tea spoonsful of Cayenne or red pepper. Shake them well together, and bottle for use.

For rheumatic pains, or pain in the head, stomach, or elsewhere, bathe the parts every night and morning. They may be taken internally at the same time, in water or on sugar, in doses from ten to sixty drops.

Cough Drops. Take sweet oil, one pint ; raw flaxseed oil, half a pint ; molasses, or honey, half a pint ; spirits of turpentine and balsam of fir, each an ounce ; liquorice extract, half an ounce ; simmer the whole until mixed. Dose, from ten to sixty drops, twice or thrice a day, for colds, coughs, and consumptions.

Rheumatic Drops. Take one table spoonful of pulverized mandrake root, one table spoonful of black cohush, and a large handful of pipsissawa, or prince's pine. Infused them in one quart of wine. Dose, from one to four tea spoonsful three or four times a day. Useful in chronic rheumatism, gout, &c.

Anti-spasmodic Tincture. Take the leaves of stramonium and lobelia, of each two ounces ; pleurisy root, two ounces ; valerian, masterwort, angelica, castor and opium, each one ounce ; all broken and put into an earthen vessel, with two quarts of alcohol and half a pint of the juice of roasted onions, to which add one fourth of an ounce of Cayenne pepper. Keep in sand heat for thirty-six hours ; then press, strain, and bottle up for use. Dose, from thirty to sixty drops ; it may be taken in hot water, and sweetened, or on sugar.

In case of cramps or spasms, the dose must be repeated every fifteen minutes until it gives relief ; or, in whooping cough, from ten to thirty drops once in half an hour until it nauseates or vomits. In croup it is to be taken in the same way. In asthma, give from forty to sixty drops, and repeat until it gives relief ; also in lockjaw. Persons who are subject to cramp and convulsive fits, may take thirty drops, three times a day, and increase the dose one drop every day. It is a quite certain remedy in all spasmodic diseases.

For Dropsy. Take gentian roots, four ounces ; elecampane, eight ounces ; sassafras, bark of the root, one pound ; sarsaparilla, two pounds. Boil the whole in two gallons of water, till one half is evaporated. Dose a wine glassful four or five times a day.

Tar Syrup. Take one gill of tar, one pint of wheat bran, half a pound of loaf sugar, and two quarts of water; stir them well together, and then let it stand thirty-six hours; strain off, and add one quart of lime-water. Dose a wine glassful three times a day. This is an excellent remedy for coughs, consumptions, &c.

Common Gargle. Take the flowers of life-everlasting or Indian posey, sage, and golden seal, or gold thread; make a tea, and sweeten with honey. Very useful for a sore mouth, sore throat, &c.

Or, chew the blossoms of indian posey, and swallow the juice, which will be found of great benefit in quinsy, sore throat, &c.

Gargle for Canker in the Stomach. Make a strong tea of bloodroot, and take equal parts of the tea and honey, and simmer them together. Give the patient little, and often, as the stomach will bear.

A Wash to remove Freckles and Tan from the Face. Take an ounce of gum benzoin, pulverized, and boil it two minutes in a gill of alcohol; then pour it into a quart of cold water, when it becomes of a milky color.

Wash the face in rain water, without soap, and then rub the face with this wash two or three times a day, with a towel.

To remove Films. Take equal parts of saltpetre, loaf sugar, and rock salt; and one fourth as much alum, all pulverized as fine as possible, and mixed with honey. Reduce in rain water.

REMEDIES APPLICABLE

TO

PARTICULAR DISEASES.

The remedies which follow, let it be understood, are not here mentioned with the view of superseding, or in any wise interfering with the general plan of treatment already recommended in the various diseases described in this work. They are inserted merely as *accidental cures*; but from which perchance, the sagacious physician may derive profitable information.

INTERMITTING FEVER, OR AGUE.

Take a pint of strong coffee, the juice of a lemon, and a gill of brandy. Mix, and drink as the fit is coming on. This has often succeeded in breaking and curing the ague, in the worst cases.

Infuse dogwood blows, bloodroot, (a little) coltsfoot, and spikenard, in spirits. Take a wine glassful of this three or four times a day.

Make a continued drink of sage, saffron, and camphor, in tea, with sweet milk and vinegar enough to turn it.

For a draught to the feet, pond lily, or poke root.

Take the juice of four lemons, and pour on a pint of boiling water. Give a spoonful every ten minutes. It will break the fit.

Peach pits and the inner bark of black alder; infuse in good spirits. Take it fasting, and often in the day.

Take one nutmeg, and the same weight of alum, finely pulverized. Mix, and divide into three portions, one to be taken each morning, for three days. This is a German remedy, and is said to be infallible in breaking the fits.

Take a drachm of sulphur mixed with molasses, for three mornings in succession. If not cured, after three days try it again.

Barberry root and camomile, in brandy.

Five finger leaf tea is excellent in night sweats and debility arising from agues.

Dandelion and sorrel, in decoction, is said to break the worst fevers.

To prevent the ague, take ten or twelve grains of black pepper daily. Persons in exposed situations would profit by attention to this.

FOR INFLAMMATORY, PUTRID AND OTHER FEVERS.

For Yellow Fever. Take plantain juice, a wine glassful every ten minutes till the fever intermits, which usually takes place in two or three hours. Keep the patient in a free air, and let him drink camomile tea, or water without limit. On the intermission of the fever, give a smart purge.

To create a sweat in spotted and similar fevers, take potatoes, fresh out of the earth, without washing; roast or boil them, till they can be mashed, and apply them in bags hot to the feet and sides. Vinegar may be added.

In all putrid and epidemic disorders, buttermilk, either fresh or boiled, taken freely, will be found inferior to no other means of cure.

For an antiseptic in putrid fevers, when the circulation is rapid, and the heat of the body greatly increased, draw a strong infusion of good ground malt in boiling water, strain it off, and add to a pint of it while milkwarm, two table spoonfuls of the best yeast, and a table spoonful of Muscovado sugar; keep it warm and when it is in brisk fermentation, give the patient a wine glassful every hour, or if the symptoms are urgent, every half hour. This has frequently saved, in the last extremity.

The same infusion may be used for injection.

FOR QUINSY.

To prevent its coming on, take a tea spoonful of salt in the mouth, and as it dissolves, gargle the throat with it. Repeat this until the quinsy is dispersed.

Take an ounce of wild indigo root, boil, strain, and stir in meal, for a poultice to the neck, to subdue the inflammation. Also gargle with the indigo root decoction. Or, marsh mallows, in a decoction.

To discuss the quinsy in its first stages, apply a plaster of four ounces of hard soap, half a pound of sugar, half a pint of linseed oil, and two ounces of resin.

FOR CANKER SORE MOUTH.

For a gargle: in a pint of sage tea, dissolve borax and alum, each the size of a kernel of corn, adding a little of molasses.

Or, gold thread, in decoction; or blackberry root; or yarrow tea.

Take juice of celandine, honey, and a little saffron, simmer a while and take of the scum. Apply the liquor to the sores with a feather.

For a sore mouth, take the yolk of a roasted egg, burnt leather pulverized, sage and burnt alum; mix with honey for a gargle.

Make a strong decoction of white oak bark; to which add burnt oyster shells and burnt alum, pulverized. Used for a sore mouth.

Take sage, hyssop, gold thread, borax and alum; boil all together in a half pint of water, and add molasses, for a gargle.

A decoction of the bark of the astringent elm (not the slippery) used freely for a gargle, is good.

For the Black Canker. Take night shade, half an ounce of the green herb to a quart of water, steeped. Wash the mouth and throat with this, and give a tea spoonful every two hours, to an adult; and to children proportionably.

Take agrimony, devil's bit, and lung wort, and boil them for a wash.

Take half a pound of squaw, or cohush root, six ounces of beech drops, and four ounces of red elm bark; boil in four quarts of rain water, to two, strain, and dissolve in the decoction two ounces of the alum and half an ounce of salt petre; to which add half a pint of honey. This will cure the most inveterate sore throat.

FOR PULMONARY CONSUMPTION.

A syrup: Take an ounce each of spikenard, cinnamon, Virginia snakeroot and parsely, two ounces of pleurisy root, and half an ounce each of cloves and gum myrrh. Steep the whole three hours in two quarts of water; then strain, simmer down to a pint, and add while warm, one pound of sugar and a pint of port wine. Bottle it up.

Dose from half to two wine glasses, three times a day, according to the strength of the patient.

Rad vitæ, or life root half an ounce, steeped in a quart of water, and used for common drink, is a most valuable remedy in beginning consumptions.

For night sweats in consumption, or if the urine is frothy, give the elixir of vitriol, ten drops four or five times a day.

Small doses of wild turnip, in honey, four or five times a day is found very useful.

Slippery elm bark, soaked in cold water, and sharpened with vinegar, is a good expectorant in consumptive coughs.

[Or a conserve of comfrey and wild turnip, in honey.]

The fumes of burning resin and beeswax may be inhaled, repeating it three or four times a day.

Or, take the yolk of two eggs, a gill of wine, a tea spoonful of tar, and a table spoonful of honey, beat them together. Dose a tea spoonful four times a day.

For a bleeding at the lungs, give moderately, a tea of sweet bugle or of cranesbill.

A handful each of comfrey, elecampane, hyssop, and lungwort: boil to two quarts, add a pound of honey, and simmer to two quarts. Dose a table spoonful three or four times a day.

Adder's tongue, eaten as salad, with sugar, is of great benefit in scrofulous consumption.

Boil four ounces of hyssop and one ounce each of wild cherry bark and skunk cabbage root, in four quarts of water to two; strain, and add a pint of honey, half a pound of sugar candy, two ounces of liquorice root pulverized, two ounces of shavings of hartshorn, one handful of rue, three ounces of aniseed, figs and raisins, each four ounces. Boil all the ingredients in one gallon of water to three quarts. Strain the decoction, and add a quart of honey and a pound of sugar. Simmer till it incorporates; then put it in a cool cellar for use. Dose a gill every morning and at bed time, fasting.

FOR COUGHS, COLDS, &c.

A large draught of boneset tea, on going to bed. A little peppermint may be added, to prevent nausea.

Or Indian turnip, a tea spoonful at a dose, and repeated two or three times before going to bed.

Or buttermilk whey, hot, and sweetened with molasses.

Or brook lime, in decoction. This may be depended upon for certain relief.

If the cough is severe, and continues, slippery elm, or flaxseed tea may be given, sharpened with vinegar. If it should not yield to this, let the bowels be kept open, and give horseradish, scraped, in vinegar, and sweetened with honey.

Two parts of garlic, and one of rue, steeped in vinegar, and sweetened with honey. A tea spoonful may be taken after every coughing.

A table spoonful each of wheat bran and flaxseed; four ounces of raisins and a lemon, sliced, all infused in a quart of boiling water, to which add sugar. Dose a wine glassful three or four times a day.

Liquorice, slippery elm, Indian turnip, and elecampane: make a syrup. Take three times a day.

For the whooping cough. Take equal parts of liquorice, sulphur, fresh butter, and spermaceti.

Or pine boughs, winter green, and sweet oil.

For cough and asthma. Take balm of gilead buds, tintured in spirits. Or coltsfoot, spikenard, and balm of gilead.

For a cough. Honey, hoarhound, liquorice, and slippery elm.

For cough and pain in the stomach. Take a tea cupful of hard soot; boil and strain. Add one fourth of a pound of honey. Take a little before eating.

Or take balm of gilead buds, balsam of fir, and half a pint of sunflower seeds. Boil the seeds to half a pint, then add the best of gin, one pint, with the rest. Take a little in the morning.

For a cough, take six ounces of extract of liquorice, one pint of white wine vinegar, one ounce of oil of almonds, and one ounce of laudanum. Dissolve the liquorice in the wine, and add the other articles. Dose one tea spoonful after every coughing.

For hoarseness; skunk cabbage root, or ball, pulverized, and mixed with molasses or honey. Dose a tea spoonful four or five times a day.

Or take sweet oil, half an ounce a dose. Rub the chest with the same.

Or, a conserve of three parts of green comfrey, and one part of wild turnip, bruised fine, and mixed with sugar.

FOR THE ASTHMA.

Vomit, when necessary, with lobelia or blood root.

For the spasmodic asthma; brown paper, dipped in a strong solution of salt petre: dry it, burn, and inhale the fumes when the fit is on.

Or which is superior to any thing else I am acquainted with; stramonium leaves, soaked in a solution of salt petre, dried and smoked, as the above. This never fails to relieve in a spasm of the asthma.

Lime-water, a table spoonful three times a day, with from fifteen to twenty drops of the tincture of stramonium in each dose.

Or lime-water with wild turnip.

The oil or decoction of sunflower seeds is excellent.

Take one pint of brandy, a small handful each of blue flag root and skunk cabbage, and one ounce of spirits of turpentine. Mix all together, and when digested, take three or four table spoonfuls a day.

Skunk cabbage root, tar, masterwort, smellage, and ginseng. Make a syrup, and sweeten with molasses. Dose a wine glassful three times a day

Take spermaceti, honey, hyssop, rue, sugar, and ginger—make a syrup or conserve.

Take five handfuls of coltsfoot, three do. ground ivy, two of hoarhound, two of hyssop, one of wormwood, and one of maidenhair; boil in six quarts of water to four; and add sugar enough to preserve it. Dose a tea spoonful three times a day.

FOR PALPITATION OF THE HEART.

Take motherwort, castor, one fourth of an ounce, and skunk cabbage root. Infuse in one pint of spirits. Dose a tea spoonful or more three or four times a day.

Or tincture of stramonium, ten to fifteen drops three times a day.

FOR PAIN IN THE CHEST, &c.

For pain in the chest, take elecampane root, snakeroot, comfrey, spike-nard, burdock, bittersweet, wild cherry bark, and Solomon seal: infuse in rum, and sweeten. Dose proportioned to its strength.

For pain in the stomach, take wild indigo root, in decoction, for almost every affection of the stomach. Dose a table spoonful three times a day.

Or boil tansy in mountain wine, and take a draught at night.

Or balm of gilead buds infused in cider for a bitter.

Or drink plentifully of mayweed tea.

For a weak stomach, take a handful each of wild cherry and peach tree bark, and half an ounce of cinnamon. Boil to a pint and add a pint of brandy. Dose a table spoonful three times a day.

FOR HEAD-ACHE.

If from acidity in the stomach, soak the feet in warm water; and take pearl ash, the size of a kernel of corn, dissolve in cider and drink.

Or put a tea spoonful of ginger and a table spoonful of magnesia in half a pint of cold water, and drink.

For a snuff, coltsfoot pulverized, mix half and half with Scotch snuff.

Cephalic snuff; Take roots of daisies, yarrow, and white hellebore; colts-foot leaves, and bayberry bark, each one ounce, finely pulverized and sifted. Mix well and drop one drachm of essence of bergamont in it; then bottle up. Take a small pinch at bed time.

FOR THE TOOTH-ACHE.

Chew the xanthoxylum, or tooth-ache bark; a piece the size of the finger nail is enough at a time. Repeat till the pain ceases. This is as effectual as any thing of the stimulating kind.

In obstinate tic douloureux, pain or rheumatism in the upper jaw and face, roasted fresh potatoes, applied hot, very frequently give relief.

Opium, camphor, oil of cloves, or oil of peppermint, a pill or drop placed in the tooth, will sometimes relieve.

Or smoke strmonium seeds or leaves in a pipe.

FOR DIARRHŒA AND DYSENTERY.

Take rhubarb one scruple, toasted nutmeg fifteen grains, syrup of orange peel enough for a bolus. Take occasionally.

Culver's root will often cure the dysentery.

In severe cases of bilious diarrhœa, twenty grains of salt petre, or about the size of a common bean, may be dissolved in a gill of water, and a tea spoonful taken every hour, till the disease is checked. I have seen this give relief in the last extremity.

All mucilaginous substances are proper for dysentery, as conserves of com-frey, slippery elm, gum arabic, &c.

Also, alkalies, as the chalk julep.

Pleurisy root, in powder, may be administered with great advantage in all cases of dysentery.

Nightshade is said to a specific in this disorder; but it requires great caution in its use. A grain of the pulverized leaves, or two drops of a saturated tincture, is sufficient for a dose for an adult.

When the bowels are very much eroded and irritated, laudanum may be added to the other remedies. Laudanum and gum arabic is a useful formula in dysentery.

Clysters of starch, with cranesbill and laudanum, are serviceable to allay the irritation of the intestines.

Or to ease pain, give a few drops of laundanum in hot saffron tea.

Take a tea cupful of wheat flour, boil it in a bag two hours, till it becomes hard. Grate it, and take a tea spoonful in milk two or three times a day.

Or hard hack, or ox balm, in decoction.

Or use white ash physic, and drink a tea of arsmart and mullen.

Or take a spoonful of plantain seed, bruised, morning and evening, until it stops.

Or the leaves of plantain, boiled in milk, and taken freely.

Or a nutmeg, pulverized, in the yolk of an egg.

Or rice boiled in milk.

Or equal parts of sweet oil, West India molasses, and West India rum. Mix, and simmer to the consistence of honey.

Or green blackberries, dried and pulverized; a tea spoonful in cinnamon water, night and morning.

Or slippery elm, scraped, with water, brandy, and sugar.

Or white oak bark and mullen leaves, each a handful; boil in rain water. Then burn a pint of brandy with a pound of sugar, and add them.

After purging sufficiently, give the following decoction : take the roots of comfrey and Solomon seal, each two ounces ; tormentil root, three drachms, white oak bark one ounce ; reduce these to a powder, and boil them very gently in three pints of water to a quart, and towards the last of the coction, add one drachm of good cinnamon, and a large nutmeg bruised ; and when cool, a gill of Madeira wine, and as much refined sugar as will render it agreeable to the palate. This has cured hundreds.

FOR THE PILES.

Mullein decoction injected, and mullein leaves applied.

Stramonium leaves applied, or an ointment of stramonium.

Plantain, wild indigo, and bittersweet, in decoction, form an excellent wash for the piles.

One ounce of Goulard's extract, in one quart of spirits, for a wash. This has been sold in the shops as a specific.

Pumpkin seed oil, applied is a valuable remedy. Or the "bittersweet ointment."

Brown sugar and pulverized oyster shells, mixed in a cataplasm.

Tobacco ashes and palm oil : an ointment.

Sitting over the steam of a strong decoction of oak bark, is of the greatest benefit.

For fistula and piles : take the expressed juice of skunk cabbage, one pound, fresh butter one pound, and mutton tallow half a pound : simmer for two hours, and then press out the ointment for use. Anoint the part twice a day for ten minutes.

Along with these applications, internal remedies must not be neglected.

Internal remedy for fistula and piles : take sulphur and elecampane, each one ounce ; fennel seeds half an ounce ; black pepper, or tincture of xanthoxylum two drachms ; and balsam copaiva, with honey, enough for an electuary. Dose the size of a walnut, twice or thrice a day.

FOR DIABETES.

Take half an ounce of pulverized kino, and two ounces of opium. Infuse in a quart of spirits, and shake them together for a week. Dose from fifteen to thirty drops, twice or thrice a day.

Tincture of cantharides ; let it be taken daily till a slight degree of irritation is perceived in the kidneys and urinary passages : then desist for a time and again repeat till cured.

Prince's pine, gravel weed and winter green decoction. Drink freely.

FOR FLATULENCY, WIND COLIC, &c.

Remove the cause, whether it be acidity, debility, or coldness in the stomach.

For present relief, give first of all, the pleurisy root, and one part of sweet flag, and infuse in brandy for a bitter.

Or bayberry bark two ounces, grains of paradise one ounce ; ginger half an ounce ; rust of iron one drachm ; digest in a pint of spirits, and take a table spoonful three times a day, till well.

Or essence of peppermint, a large dose, will give immediate relief.

Or caraway seeds, three drachms at a dose.

Elixir vitriol is of great service in flatulent complaints.

The common pains and disorders of the stomach may almost invariably be removed, by turning down half a pint of boiling water, as hot and as fast as it can be taken.

Obstinate fixed pains in the sides and loins of many years standing, have soon yielded to the following carminative: Bayberries, six drachms, grains of paradise, two drachms; socotorine aloes, and rust of iron, each two scruples; spirit of turpentine, two drachms, and simple syrup enough to make an electuary. Dose the size of a walnut night and morning.

This is a powerful medicine.

In wind and bilious colics, and in iliac passion, purgative and stimulating clysters are of great service. Also clysters of yeast; or of tobacco smoke.

In bilious colics, quick purges are necessary.

The crawley or fever root, cannot be given amiss in any species of colic. Alone or taken in tea of pleurisy root, it is superior to anything else in common use.

If necessary, ferment the pit of the stomach with hops or oats fried in vinegar. Use friction freely on the bowels.

FOR CHOLERA MORBUS.

Cinnamon water one ounce, one grain of ipecac, thirty-five drops of laudanum, a drachm of spirits of lavender, and two drachms of tincture of rhubarb, to be taken at one draught, which will give immediate relief.

Put a table spoonful of hot ashes in a tumbler of cider, and give the patient three table spoonfuls of it. This commonly cures in half an hour. If the dose is thrown up, repeat.

In all cases promote the vomiting till the offending matter is ejected.

Pearlash, in solution, may be given to allay the irritation of the stomach. Or sal æratus and rhubarb.

FOR EPILEPTIC FITS, CRAMPS, CONVULSIONS, &c.

Take two ounces of stramonium seeds, pulverized, one ounce of castor, and half an ounce of opium. Digest in a pint of spirits eight days, and strain. Dose, from fifteen to twenty-five drops three times a day, fasting.

Stramonium and all antispasmodics are proper.

To break epileptic fits, put a spoonful of salt in the patient's mouth. This will give quic relief in most cases.

Take equal parts of gum myrrh, sweet oil, spirits of turpentine and sulphur. Dose from fifteen to forty drops.

Take roots of comfrey, sassafras, burdock, elecampane and horseradish, and tops of hoarhound and raspberry, each a handful. Simmer in water for eight hours, and drink a gill four times a day.

Or purslain tea for a common drink.

Take a handful each of white garden lily root, blake snakeroot, and plantain, boil to a pint, strain and add a pint of rum and a pound of sugar. Dose a gill three or four times a day.

Crawley, valerian, and stramonium probably comprise as much virtue in curing these disorders as any other articles. They, however, like all others, require to be persisted in for some time to conquer this disease entirely.

For nervous fits and weakness, calves' feet jelly, tintured with cloves, &c. is very strengthening and restorative.

For cramps, the cramp or high cranberry bark, given in tea, will relax them in almost all cases.

FOR PALSY.

Give hot stimulants internally, and apply externally, with friction.

The phosphoric ether, prudently managed, is probably as effectual as any other means that can be used.

Or electricity may be tried.

Xanthoxylum bark, prickley ash, galander root, grains of paradise, &c., may be employed in paralytic diseases with advantage. Also horseradish, mustard seed, and burdock seed.

FOR JAUNDICE.

If from an obstruction from biliary calculi, give emetics.

Barberry bark, in decoction; soot tea; and bayberry bark, in tincture; are all excellent.

Or the juice or decoction of dandelions.

Or hog's or beef's gall in pills or bitters.

Raw eggs, three or four times a day, in wine helps greatly in the cure of jaundice.

Barberry, wild cherry bark, and yellow walnut bark, in decoction.

Or take every night on going to bed two or three pills of castile soap, and drink plentifully of soot tea.

Or infuse half a pound of blood root in five pints of old rum, take half a wine glassful three times a day on an empty stomach, increasing the dose.

Or extract of boneset in pills.

One gallon of cider, one dozen of eggs, half a pint of hard soot, one double handful of wild cherry bark, and a handful of pricklyash bark. Boil. Add half a pint of treacle, four pounds of sugar, and four spoonfuls of ginger. Dose half a gill three times a day.

FOR DROPSY.

Artichoke leaves three handfuls, bruised juniper berries one quart, scraped horseradish one handful, green fir tops two handfuls, and bruised mustard seed, two table spoonfuls. Mix and steep in two gallons of water to one. Dose for an adult half a pint morning and evening.

Make a tea of dwarf elder roots for daily drink. Continue it for thirty days.

Or make a strong decoction of milkweed roots, and drink a wine glassful three times a day.

Or a decoction of white clover flowers. Drink freely.

Or take masterwort root half an ounce, and the bark or flowers of dogwood one ounce; infuse in a bottle of cider, and drink.

Or take a handful of ashes of wormwood: infuse in a quart of gin, and shake it well together. Dose half a wine glassful or more.

Or take four ounces each of fennel seeds, juniper berries, and orange peel. Simmer in water, strain and add as much gin as will keep it. Dose a wine glassful three times a day.

Half a pound each of horseradish and parsley, one ounce of oxymel of squills, two ounces of Virginia snake root, half a pound of white oak bark, and half an ounce of rust of iron. Put the whole in two gallons of sound cider, in a stone jug, and cover it tight. Let it digest, near a fire, for four or five days; then strain and bottle up tight. Dose half a wine glassful three times a day.

Take a handful of rose willow bark, and half a peck of dry chestnut leaves:

boil in five quarts of rain water to two; and add a tea spoonful of sulphur. Dose a tea cupful three times a day.

Boil one ounce of seneca snakeroot to three gills, and strain. Give half a table spoonful every hour till the whole is used, which will wholly or partially carry off the water. After which give the following: rust of iron, one ounce, masterwort root pulverized, half an ounce, bark or flowers of dogwood one ounce, and ginger half an ounce, all pulverized fine and mixed for powders. Dose a tea spoonful three times a day.

Take one pint of bruised mustard seed, two handfuls of bruised horseradish, eight ounces of lignum vitæ, and four ounces of Indian hemp root. Infuse in seven quarts of sound cider, and let it simmer on hot ashes till reduced to four quarts. Dose a wine glassful four times a day. Rust of iron may be added.

Apply hot stimulating cataplasms to the feet and legs; as horseradish, mustard seed, Cayenne pepper, &c.

To evacuate the water by urine, infuse thirty or forty cuckle burs, cut fine, in a quart of Holland gin, and give the patient a wine glassful three times a day, if he can bear it. Give blue flag or mandrake physic occasionally; the mandrake may be given in gin, with fennel seed, to prevent griping and wind. For strengthening the system, and evacuating the water moderately, take lignum vitæ chips, burdock root, bittersweet, coltsfoot, aniseed, fennel, and Solomon seal: form a decoction for daily drink.

FOR WORMS.

Take skunk cabbage ball one ounce, whitewood bark, and Indian hemp root, each one ounce; all pulverized fine and mixed. Give from a half to a whole tea spoonful three mornings in succession, before eating.

Or essence of wormwood and turpentine dropped on sugar.

Or red berries of black alder made into a syrup.

Or walnut shucks in decoction.

Or old tobacco pipes, pulverized fine, and given in molasses.

Worm syrup: Take one pound of roots and leaves of the great plantain; four ounces each of unicorn root, black alder bark, and Indian hemp root; and three ounces of roots and leaves of skunk cabbage. Boil all in two gallons of water to three quarts; strain and add two quarts of molasses or four pounds of sugar, and boil to the consistence of molasses.

Children from two to four years of age may take half a wine glassful every night and morning for three days before the full and change of the moon, which will bring away the worms entire.

FOR SORE, OR INFLAMED EYES.

Laudanum, brandy, and spring water. A wash.

Or wormwood tops with the yolk of an egg.

Or a fomentation and poultice of hops.

Take stinkweed or stramonium leaves, bruise them and wet with milk and mix with rye flower. Put it between a cloth and lay on.

Take the expressed juice of house leeks, and put it in a new eggshell, with two tea spoonfuls of honey. Set it on hot ashes and skim off the scum when it rises. Apply to the eye.

Or take the pith of sassafras and lobelia leaves, each a small handful, and infuse in one quart of water. Add a gill of the juice of roasted onions, and a table spoonful of honey. Mix. Put a few drops in the eyes if inflamed, three or four times a day.

Or take twenty grains of white vitriol, twenty of sugar of lead, six of salt, six of opium, and six of blood root. Dissolve all in one pint of soft water, and use as the above.

FOR GENERAL DEBILITY.

The Tonic Tincture.

To invigorate the system : Take juice of sage one gill, cinnamon and ginger each one ounce, fresh angelica root, bruised, one ounce, fresh spikenard root two ounces, saffron and galangal root each two ounces, and cloves one ounce. Put all into a brass kettle, and steep in six quarts of Malaga wine for two hours. Bottle it up. Dose half a wine glassful every morning, increasing.

Take comfrey, Solomon seal, and raisins, each six ounces ; put them in six quarts of water and simmer a while. Then add two ounces of pearly barley, and steep to two quarts. Then turn off the liquor, and add a pint of brandy and two ounces of loaf sugar. Dose two-thirds of a wine glassful, three or four times a day.

Debility in old age : tar water morning and evening.

For dyspepsia : take one pint of hickory ashes and a tea cupful of hard soot ; infuse in one quart of boiling water. Take a little, three or four times a day.

Dyspeptic pills : Take four ounces each of white oxide of bismuth, extract of gentian and socotorine aloes ; two ounces each of colocynth, Castile soap, and gamboge ; oil of cloves one drachm. Pulverize and mix for pills. Commence with one every three hours, till the bowels are loosened, and then take one morning and evening. This preparation has been highly celebrated.

FOR RHEUMATISM.

Chronic : take half a pound each of sarsaparilla and lignum vitæ, three ounces of prince's pine, and two ounces of wintergreen : boil in five gallons of water to one gallon. Strain and add three pounds of sugar. Dose a wine glassful three times a day.

Take one ounce of Seneca snake root, two ounces of white pine bark, two ounces of burdock seed, an ounce and a half of prickly ash bark : boil all in four quarts of water to three, and take half a pint morning and evening fasting.

This preparation will be found to possess great efficacy.

Take cider brandy, sulphur and hops, for a drink ; and cider brandy, sulphur and Cayenne pepper for a wash. This has given immediate relief in the most inveterate cases of chronic rheumatism, lumbago, and hip gout.

Or essence of hemlock, twenty or thirty drops at a dose, in fivefinger leaf tea.

Or boil nettles soft, and foment with the liquor and apply the herbs as a poultice.

For a plaster : take laudanum, white turpentine, shoemaker's wax, a beef's gall and camphor. Digest in spirits enough to cover them, in an earthen pot covered, till it is thick and sticky, when it may be applied as a plaster to the seat of pain.

Put four ounces each of unicorn root, prickly ash bark, and blood root, bruised, into four quarts of old Jamaica rum, and let it digest by the fire in

a jug, for a week, shaking it frequently. Dose a table spoonful three times a day, increasing to a wine glassful, as the patient can bear it.

Also, drink four times a day, a decoction of half a pound of prickly ash bark, two ounces of tooth-ache bark, one ounce of bittersweet, and four ounces of squaw root; boil in eight quarts of water to the consumption of four.

Rub the pained parts twice a day, for ten minutes each time, with the following ointment: boil two handfuls of the leaves of skunk cabbage and arse-smart, each, in two pounds of lard, till the leaves crisp; then strain the ointment, while hot, and add one ounce of fine powdered roll brimstone. Apply this and cover the parts with flannel.

FOR SCROFULA.

Frostweed, or scabious, drank daily, in decoction, and applied as a poultice, has cured numbers in this city.

Take pond lily root and prickly pear, bruise to a pumice; and add resin and beeswax, for a salve.

Also drink, for six weeks, half a pint per day of decoction of devil's bit. Or the same quantity of ground ivy.

Take the bark of the bayberry root, pulverized, and apply to the lumps three times a day. If it breaks, wash the sore constantly with the decoction, and apply the green leaves. Drink bayberry tea constantly, a cupful four times a day.

Or, drink a tea of the scrofula plant, and apply a poultice of the same.

Take Peruvian bark in coarse powder, and seneca snake root, of each two drachms; unslacked lime, four ounces; boiling water, one pint. Grind the lime with the bark and root in a mortar, adding the water by degrees; let it stand six hours, strain off, and give two table spoonsful every third hour, with as much sweet milk.

When scrofulous tumors are recent, apply tincture of cantharides with soft linen, so as not to raise blisters. If this does not soften or discuss the tumor, pound garlic to a soft pulp, add a few drops of cream, and apply it as a poultice every night at bed time. If the tumor breaks, dress it with a strong decoction of wild cherry bark in lime water, applied with lint, and covered with a plaster to exclude the air.

FOR CANCERS.

For a salve: press the juice out of pokeberries, and set it in the sun till it is evaporated to a salve. Apply.

Or, take the juice of sheep sorrel, and evaporate in the same manner to a salve. Apply to the cancer.

Or, take sheep sorrel, poke leaves, and yellow dock; express the juice and dry in the sun, for a salve.

Or, make a poultice of poke berries, pigweed, and green of elder.

Or, apply red onion juice.

Or, make a plaster of alum, vinegar, and honey, equal parts, in wheat flour.

Or, take Indian turnip, pulverized, to make a poultice.

Dr. Henry's Cancer Ointment. Take a pint of juice of the leaves and roots of poke weed, simmer on hot ashes in an earthen pot for a short time; then mix with a pound of fresh butter. Burn it in a frying-pan, and stir in half a pint of finely pulverized gunpowder, and keep it over the fire till it flashes once or twice; then set it on hot ashes in a pipkin till it is well incor-

porated, when it may be put in pots, and covered with alcohol to prevent its moulding.

This ointment, applied twice a day, will kill the roots of a cancer.

For a stone cancer: take the powder of dry yellow dock root, wet with port wine, and apply it to the cancer, renewing it three times a day.

Make a daily drink of a decoction of yellow dock and bark of black alder, each a handful, boiled in four quarts of water to two.

For Drawing Cancer Plasters. The lead plaster. Take half a pint of olive oil, two ounces of Castile soap, shaved fine; put them in an earthen vessel over a slow fire till they incorporate. Then add two ounces of red lead, pulverized fine. Stir the whole till it becomes of the consistence of salve.

Another. Take one gallon of urine, and two pounds of oak bark; boil the bark in the urine till it is reduced to two quarts; then strain, and add wheat flour, first made into a paste, half a pound, honey, one pound, white turpentine, a pound and a half. Simmer to a salve. Add to this, white vitriol, pulverized, more or less, according to the strength that is required. Change it twice a day.

This plaster is said to draw out cancers as effectually as any of the cancer plasters in use, and with far less pain.

For a plaster: mix soap, blood root, pulverized, and linseed oil, to the proper consistence.

Cancer root and balm of gilead buds, bruised together for a cataplasm. Or, use the cancer root for a wash.

Take a table spoonful of sweet oil twice a day, and a tea spoonful of balm of gilead buds twice a day.

FOR SALT RHEUM.

Take wild cherry bark, tag alder, and green of elder; boil and add saltpetre, the size of a walnut to a quart. Take one spoonful, morning and evening.

Also, use a tea spoonful of saltpetre in a pint of water, as a wash.

Boil one pound of plantain in two quarts of beef brine, and one of urine, for an hour. Wash.

Or, spirits of turpentine. Anoint.

Or, take half a pound each of tar and lard. Simmer in spring water, for an ointment.

Or, marrow of beef bones, black pepper, turpentine, and brimstone. Make an ointment.

Take half a pound each of elder bark, yellow dock root, burdock root, tag alder bark, and lignum vitæ, and one fourth of a pound of sassafras bark. Make a syrup.

Or, make a decoction of mullein, elder, gill-go-by-the-ground, milk-weed, pond lily, and rose willow, for drink.

Or, Castile soap and Madeira wine. Make a suds, and drink. Also wash.

Or, a table spoonful of saltpetre, dissolved in a quart of water. Dose—a table spoonful twice or thrice a day. Wash with the same.

For cleansing the blood: take a handful each of pleurisy root, rose willow bark, spicewood bark, dock root, plantain root, dandelion root, spikenard, comfrey, and burdock, and a little calamus. Boil to two quarts, and add half molasses. Dose—a small glassful three times a day.

FOR ERYSIPELAS, OR ST. ANTHONY'S FIRE.

Elder flowers, in decoction, form a very good laxative in this disorder.

Take Virginia snake root, masterwort root, burdock root, whitewood bark, and ginseng root. Infuse in brandy. Dose, three times a day.

Or, Castile soap and old Madeira wine. Make a suds, and drink freely.

For a poultice : a rye pudding, boiled, and mixed with soft soap. Lay on three or four times.

FOR SCALD HEAD.

Take a pint of tar, and a quarter of a pound each of spermaceti and mutton tallow. Boil in a quart of water an hour ; skim and cool. Anoint.

Or, take dock root, low mallows, plantain, green parsley, sulphur, beeswax, tar, and fresh butter. Make an ointment.

Or, take nightshade, stramonium, cicuta and yellow dock. Make an ointment with tar and lard.

FOR A FELON, OR WHITLOW.

Take indigo weed and blue flag roots—a poultice.

Or, two ounces each of white hellebore and blue flag, boiled in a quart of milk. Hold the finger in it when hot, and afterwards poultice.

Take a lump of rock salt, the size of a walnut, and roast it in a cabbage leaf in hot embers for twenty minutes ; then powder it, and mix it with hard soap for a salve. A little turpentine may be added. Put the finger in weak ley a few minutes every hour in the day.

Take an ounce of wild indigo root, and a quarter of an ounce of blue flag root. Boil them in urine, or in ley, and hold the finger in the hot liquor, and afterwards poultice with it, thickened with rye meal. This is a certain cure.

Take one pint of the strongest drained ley, warm, and dissolve hard soap in it until it is as thick as common soft soap. Then stir in one fourth of a pound of red lead, which will make it a convenient plaster, which must be applied till the wound is thoroughly cleansed.

FOR THE VENEREAL DISEASE.

For gonorrhœa : take one ounce each of spirits lavender and balsam copaiba ; half an ounce each of spirits of turpentine, and spirits of nitre ; and one fourth of an ounce of Harlœin oil. Shake well together. Dose—from fifteen to twenty-five drops three times a day.

Another. Take one ounce of juniper oil, and half an ounce of Turlington's balsam. Mix. Dose—from thirty to sixty drops three times a day, an hour before eating, in a tumbler full of water.

Also, for an injection. To six ounces of rose water add half a tea spoonful each of white vitriol and sugar of lead, and half an ounce of Turlington's balsam. Inject thoroughly three times a day, allowing the injection to remain a few minutes if possible.

For the syphilis—A sailor's remedy. Take a table spoonful of gunpowder, dissolved in half a gill of urine, every morning. It may also be taken in water.

For a wash for malignant and eating syphilis and other sores. Black cherry bark, boiled in urine. Wash.

For syphilis. Take poke roots and tamarik bark; make a decoction. Take three times a day.

FOR FLUOR ALBUS, OR WHITES.

Take one ounce each of cherry bark and butternut bark, and four ounces of bark of rose willow. Boil to three quarts, and add a quart of Madeira wine and six ounces of sugar. Dose—two tea cupsful a day. Omit in particular situations.

Or, boil one pound of rose willow root in six quarts of water to three, and add three pints of port wine and four ounces of sugar. Dose—a tea cupful three times a day.

Or, take four ounces of burdock root two ounces of rose willow bark, one of parsley, and two of yarrow tops. Boil in four quarts of water and one of new milk to two quarts. Add sugar, and take a gill three times a day.

For injection. White oak and alum.

Or, cranesbill, white oak, and highbriar, in decoction.

Take one handful each of tansy, rue, coltsfoot, motherwort, fennel and wormwood, and half a pound of raisins. Boil down to two quarts, and add a pint of brandy and half a pound of sugar.

Or, take one ounce each of white beth root, and pleurisy root, and half an ounce of smellage seeds. Infuse in one pint of brandy. Afterwards boil the roots to one pint of water, and add to the brandy. Add a little sugar.

Or, take yarrow and plantain roots, and white oak bark—a decoction—inject and drink.

Or, A decoction of white hollyhock, root and flowers.

Or, take egg shells, and scorch till brown; then mix with white turpentine into pills. Dose—one every morning till well.

FOR OBSTRUCTED MENSES.

Horseradish and rust of iron infused in old cider.

Or, spruce, hemlock, tansy, ergot (a very little), pennyroyal, and oak of Jerusalem—a decoction.

Or, one ounce of calamus and half an ounce of masterwort, in a quart of brandy. Dose—a table spoonful on an empty stomach.

Or, tansy beer.

Or, cinnamon, cloves, spikenard, and comfrey, cut fine and baked with sugar in an oven.

Or, brooklime, in decoction.

SALVES, OINTMENTS, PLASTERS, &c.

For Swellings and Sores. Take one pound of the juice of the green leaves of skunk cabbage, one pound of fresh butter, and half a pound of mutton tallow. Put these in an earthen pot and simmer two hours. Anoint twice a day.

For the Itch. Sulphur, turpentine, and hogs' lard. Mix. Anoint the soles of the feet and palms of the hand, and hold to the fire. Take sulphur inwardly.

An Excellent Plaster for a Weak Back. One ounce of Burgundy pitch, camphor, and black pitch, and half an ounce of white turpentine. Melt together for a plaster.

To Destroy Pimples on the Face. Rub magnesia on a woolen cloth, and rub on the face.

Or, to a pint of lime water add a tea spoonful each of white vitriol and sugar of lead. Wash.

Foot's Salve for Fever Sores. Take resin and beeswax, each a pound and a half; hog's lard, three pounds. Simmer the whole together for three or four hours, and when partly cool add two ounces of oil of spike.

Common Salve. White turpentine, beeswax, and mutton tallow, equal parts; a little honey and the yolk of an egg. Melt together. Used in fresh wounds, &c.

Antiphlogistic Plaster. Take the bark of sumach roots, spikenard, hops, arsesmart, wormwood, and wild indigo roots, or blue flag, of each a double handful; put them all in an earthen vessel, with two quarts of vinegar, and keep it warm for twenty-four hours, or until the vinegar is half evaporated; then press the roots and herbs, and let the liquid settle, after which add one pound of red lead, and one quart of sweet oil, and simmer them all together over a moderate fire, continually stirring it for five or six hours, or until it will work like wax. Add to it a little previous to its being taken off, two ounces of laudanum, and when taken off, two ounces of camphor, and one ounce of salts of nitre. Continue stirring it till cool; then work it like wax, and put it in boxes for use.

This plaster proves a safe and efficient remedy in all cases of external inflammations, such as biles, bruises, wounds, or any hard or swelled tumors, in old ulcers, fever sores, scrofula, ruptures, ague in the breast, pain in the stomach, for sore throat, or quinsy; is a good strengthening plaster, and is preferable to a blister in moderate cases. It should be spread on thin leather, and changed when necessary.

A Strengthening Plaster. Take one beef's gall, Castile soap, two ounces, Burgundy pitch or hemlock gum, six ounces, brandy, half a pint; camphor and opium, each one fourth of an ounce, spirits of turpentine, one spoonful, all to be simmered down to a plaster and spread on leather.

MEDICAL ELECTRICITY.

The application of this subtle fluid to medicinal purposes, was thought of soon after the discovery of the electric shock. At the first introduction of electricity, as a remedy, it was very highly celebrated for its efficacy in a number of diseases, and after various turns of reputation, its medical virtues seem now to be pretty well established.

The medicinal operation of electricity may be referred to its stimulant power. It produces forcible contractions in the irritable fibre, excites therefore to action, if duly applied, and when in excess immediately exhausts irritability. It possesses the important advantage of being brought to act locally, and of being confined to the part to which it is applied, while it can also be applied in every degree of force.

Electricity is applied to the body under the form of a stream, or a continued discharge of the fluid, under that of sparks, and under that of shocks,

the first being more gentle, the second more active, and the last much more powerful than either of the others. The stream is applied by connecting a pointed piece of wood, or a metal wire, with the prime conductor of the electrical machine, and holding it by a glass handle, one or two inches from the part to which it is to be directed. A very moderate stimulant operation is thus excited, which is better adapted to some particular cases than the more powerful spark or shock. The spark is drawn by placing the patient on the insulated stool, connected with the prime conductor, and, while the machine is worked, bringing a metal knob within a short distance of the part from which the spark is to be taken.

A sensation somewhat pungent is excited, and slight muscular contractions may be produced, these effects being greater or less according to the distance at which the knob is held, if the machine be sufficiently powerful. The shock is given by discharging the Leyden phial, making the part of the body through which it is intended to be transmitted, part of the circuit. The sensation it excites is unpleasant, and the muscular contractions considerable, if the shock be moderately strong.

The general rule for the medical employment of electricity, is to apply it at first under the milder forms, and gradually to raise it, if necessary, to the more powerful. Mr. Cavallo, who has published one of the latest and best treatises on medical electricity, entirely disapproves of giving violent shocks, and finds it most efficacious to expose the patient to the electrical aura discharged from an iron or wooden point; or, if shocks be given, they should be very slight, and not exceed thirteen or fourteen at a time. In this way he recommends it as effectual in a great number of disorders. The patient may be electrified from three to ten minutes; but if sparks be drawn, they should not exceed the number of shocks above mentioned.

Rheumatic disorders, even of long standing, are relieved, and generally quite cured, by only drawing the electric fluid by a wooden point, from the parts, or by drawing sparks through flannel. The operation should be continued for about four or five minutes, repeating it once or twice every day.

Deafness, except when occasioned by obliteration, or other improper configuration of the parts, is either entirely or partly cured by drawing the sparks from the ear with the glass tube director, or by drawing the fluid with a wooden point.

Tooth-ache, occasioned by cold, rheumatism, or inflammation, is generally relieved by drawing the electric fluid with a point, immediately from the part, and also externally from the face. But when the body of the tooth is affected, electrization is of no use, for it seldom or never relieves the disorder, and sometimes increases the pain to a prodigious degree.

Swellings, in general, which do not contain matter, are frequently cured by drawing the electric fluid with a wooden point. The operation should be continued for three or four minutes every day, and in obstinate cases it is necessary to persevere in its use for several weeks.

In inflammation of the eyes, the throwing off the electric fluid by means of a wooden point, is often attended with the greatest success, the pain being quickly abated, and the inflammation being generally dissipated in a few days. In these cases the eye of the patient must be kept open, and care should be taken not to bring the wooden point very near it, for fear of any spark. Sometimes it is sufficient to throw the fluid with a metal point; for in these cases, too great an irritation should always be avoided. It is not necessary to continue this operation for three or four minutes without intermission, but after throwing the fluid for about half a minute, a short time may be allowed to the patient to rest and wipe his tears, which generally flow very copiously; then the operation may be continued again for another half minute, and so on four or five times a day.

Palsies are seldom perfectly cured by means of electricity, especially when

they are of long standing, but they are generally relieved to a certain degree; the method of electrifying, in those cases, is to draw the fluid with the wooden point, and to draw sparks through flannel, or through the usual covering of the parts, if they are not too thick. The operation may be continued for about five minutes every day.

Ulcers, or open sores of every kind, even of long standing, are generally disposed to heal by electrization. The general effects are a diminution of the inflammation, and first a promotion of the discharge of properly formed matter, which discharge gradually lessens according as the limits of the sore contract, till it be quite cured. In these cases the gentlest electrization must be used, in order to avoid too great an irritation, which is generally hurtful. To draw or throw the fluid with a wooden, or even with a metal point, for three or four minutes per day, is fully sufficient.

Cutaneous eruptions have been successfully treated with electrization; but in these cases it must be observed, that if the wooden point be kept too near the skin, so as to cause any considerable irritation, the eruption will be caused to spread more; but if the point be kept at about six inches distance, or further if the electric machine be very powerful, the eruptions will be gradually diminished till they are quite cured. In this kind of disease, the immediate and general effect of the wooden point, is to occasion a warmth about the electrified part, which is always a sign that the electricity is rightly administered.

Scrofulous tumors, when they are just beginning, are generally cured by drawing the electric fluid with a wooden or metal point from the part. This is one of those kinds of diseases in which the action of electricity requires particularly the aid of other medicines in order to effect a cure more easily, for scrofulous affections commonly accompany a great laxity of the habit, and a general vitiation, which must be obviated by proper remedies.

Lock-jaw has in some instances been speedily cured by small shocks passing through the jaws.

Nervous head-aches, even of long standing, are generally cured by electrization. In this disease, the electric fluid must be thrown with a wooden, and even sometimes with a metal point, all round the head successively. Sometimes exceedingly small shocks have been administered; but these can seldom be used, because the nerves of persons subject to this disease are so very irritable that the shocks, the sparks, and sometimes even the throwing of the electric fluid with a wooden point, kept very near the head, throw them into convulsions.

Obstructed menses, a disease of the female sex, that often occasions the most disagreeable and alarming symptoms, is often successfully and speedily cured by means of electricity, even when the disease is of long standing, and after the most powerful medicines used for it have proved ineffectual. The cases of this sort, in which electrization has proved useless, are so few, and the successful ones so numerous, that the application of electricity, for this disease, may be justly considered as an efficacious and certain remedy.

Small shocks, that is, about the twentieth of an inch, may be sent through the pelvis; sparks may be taken through the clothes, from the parts adjacent to the seat of the disease, and also the electric fluid may be transmitted, by applying the metallic, or wooden extremities of two directors to the hip in contact with the clothes, part of which may be removed in case they be too thick. Those various applications of electricity should be regulated according to the constitution of the patient. The number of shocks may be about twelve or fourteen. The other applications may be continued for two or three minutes, repeating the operation every day. But either strong shocks, or a stronger application of electricity than the patient can conveniently bear, should be carefully avoided, for by those means, sometimes, disagreeable symptoms are produced.

It may be observed, that, in many cases, the help of other remedies will be required to assist the action of electricity, which, by itself, would perhaps be useless ; and, on the other hand, electrization may often be applied to assist the action of other remedies, as of sudorifics, strengthening medicines, &c. It not unfrequently happens that electricity is relinquished as an unsuccessful remedy, when by a more rigid perseverance a cure might have been effected.

PART VII.

PHYSIOLOGY.

INTRODUCTORY REMARKS.

[Under this Department will be found not only Physiology, as applied to the Human System, but with it blended the Science of LONGEVITY, which subject teaches us the manner in which we should conduct ourselves in order that the prevalence of disease may be prevented, and our lives prolonged to a good old age. For if we would but study the manner in which we should ourselves live, and the way in which we should bring up our children, there would be fewer diseases entailed on our offspring ; diseases, too, which cause them to linger out a miserable existence, and bring them to a premature grave ; and the green grass is growing over their heads, when they should be illuminating the world with their genius !

As a science, Physiology is one of the most beautiful studies in nature ; to know how the human system operates, and how all things are carried on in order to sustain life, and how life is supported amid all the vicissitudes through which we must pass while journeying from the cradle to the grave, must, indeed, be of interest to every individual member of our race.

As the object of this work is to furnish its readers with information which shall be wholly of a useful and practical character, much which might otherwise have been said on the subject of Physiology has necessarily been omitted. The editor has taken great pains to illustrate different points with engravings, got up with much labor and expense. In this department will be presented a short system of Phrenology, prepared by Mr. Fowler, one of the most able, scientific and practical Phrenologists in this country. The public mind has been awakened to this subject ; and it certainly deserves attention. Not feeling myself competent to give to this subject its merited attention, I have intrusted the whole matter to the above-mentioned gentleman.

The subject of Animal Magnetism has lately excited a considerable attention in this country ; and I have, therefore, thought it proper to give some of the means which are employed by its professors to produce a magnetic effect on other persons ; for this purpose I have made extracts from the opinions of others who have practised this mysterious subject ; after which I have given my own views and observation, leaving the public to form its own judgment in regard to the merits of the subject.

The editor has been furnished with a short essay on the subject of dentistry by Archibald McIlroy, a very accomplished Dentist of this city. This subject has always been too much neglected, and many a good set of teeth

allowed to decay when they might have been preserved by a little timely attention.

The various parts that have been given under the Department of Physiology are of great importance to every person; the subjects have each had their due weight, and have been approached with prudence and firmness. The editor has, no doubt, herein exposed himself to the opposition of other persons who may think differently from himself; but truth should never be withheld or suppressed. The editor's opinions have been given with frankness and sincerity, and an entire conviction of their truth; and he deems any further prefatory remarks unnecessary, and will proceed to consider the different divisions of the subject of Physiology in the order in which they naturally occur.]

OSTEOLOGY, OR FORMATION AND GROWTH OF BONE.

[Ossification commences at about the eighth week of conception; previous to this there exists, in the place of bone, a jelly-like substance, which in a short time is changed, or taken up by the absorbents, and cartilage deposited in its stead. At this time small arteries, which increase rapidly in number, make their appearance running towards the point where bone is first to be deposited. In long bones, a small nucleus is deposited by the arteries, in two or three places, stretching towards each other, until they finally come together, and form a perfect bone. In flat bones, ossific matter is generally deposited at one point, from which the osseous fibres issue in rays, until the bone is formed in its proper shape and extent.

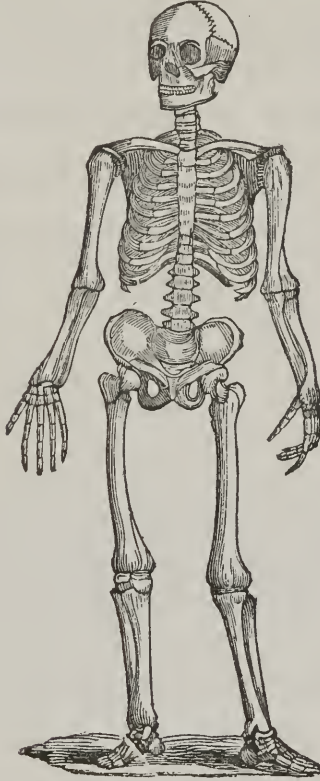
On examining a bone before it is complete, or during the progress of ossification, the vessels can be distinctly seen radiating from one point in the direction that bone is to be formed, depositing ossific matter in their course, and extending themselves into the cartilage, where they are lost, or lay dormant until called into action. As ossification progresses, these vessels gradually disappear, until the bone becomes finally quite white; whereas in the early period it presented a reddish hue, in consequence of the great number of blood vessels distributed through it. In the same proportion that bone is deposited, the cartilage is also taken up and passed off. At a very early period of life, especially before birth, ossific matter is much more rapidly deposited than at any subsequent period; and it is seldom, till after the age of puberty, that the edges and extremities of bones become completely ossified.

The solid part of bone is composed of phosphate of lime, together with a small proportion of carbonate, but its strength and toughness depend in a great measure upon the animal substance, which consists of fat, blood vessels, and absorbents; these, together with an abundant distribution of nerves, are as freely dispersed through the bone as any other part of the system, consequently the bone, as well as the soft parts, is continually undergoing change, by being taken up and carried off, and new particles deposited in its place; this change, however, takes place with far greater facility in early life than at an advanced age; and for this reason, the great vascularity that exists in youth and health, becomes exceedingly diminished, and lime predominates in the bone; hence we at once understand why a fractured bone unites so much more readily and firmly in the former than in the latter.

The various bones of the system assume different shapes, according to their situation and use. They are supplied with rough places and processes for the attachment and insertion of muscles; and the peculiar shape and size of these processes depend upon the power of the muscles inserted into them. Nearly all the bones in the system are provided with a hollow groove for the lodgment of a marrow, and for the transmission of blood vessels and nerves.

By placing a bone in sulphuric acid the lime will soon be precipitated, in fine powder, leaving the animal portion in the same shape as the bone was previously, and perfectly flexible.

The following engraving represents the anatomy of a full grown skeleton, following which is a brief description of its most important parts, with the name and situation of each individual bone :]



THE OSSEOUS, OR BONEY SYSTEM.

[The human skeleton is composed of 108 bones, besides the teeth ; and is divided into three great divisions, viz : Head, Trunk, and Extremities. The bones of which are arranged in the following order :]

BONES OF THE HEAD.

Frontal Bone. Situated in the anterior part of the skull, forming the forehead and upper part of the orbits.

Parietal Bones. Situated one on each side of the superior part of the cranium.

Occipital Bone. Situated in the posterior part of the cranium.

Sphænoid Bone. Situated in the middle of the basis of the cranium, extending underneath from one temple across to the other.

Temporal Bones. Situated at the sides and inferior part of the cranium.

Ethmoid Bone. Situated in the anterior part of the basis of the cranium above the root of the nose and between the orbits.

BONES OF THE FACE.

The bones of the face are fourteen in number, and are divided into those of the upper and under jaw. The upper jaw is formed of thirteen bones, viz: two superior maxillary, two nasal, two palatine, two jugal or malar, two inferior spongy, two lachrymal, and the vomer, which are united to the cranium, and with one another, by harmony. The under jaw consists of one bone.

Superior Maxillary Bones. Situated in the anterior and middle part of the face.

Jugular or Malar Bones. Situated at the sides of the face.

Ossa Nasi, or Bones of the Nose. Situated in the superior and middle part of the nose.

Lachrymal Bones. Situated in the internal angle of the orbit.

Inferior Spongy Bones. Situated in the side and lower part of the nostrils.

Palatine Bones. Situated in the posterior part of the nose, from which they ascend laterally to the orbits.

Vomer. Situated in the middle of the cavity of the nostrils, which it divides into two parts.

Lower Jaw Bone. Situated in the inferior and anterior part of the face.

Os Hyoides. Situated in the fauces, between the basis of the tongue and larynx.

BONES OF THE TRUNK.

The trunk of the skeleton is divided into the spine, chest, loins, and pelvis.

Spine. A long column, or pillar, which extends in the posterior part of the trunk from the occipital bone to the os sacrum. Composed of 24 bones called vertebræ, viz; 7 of the neck, 12 of the back, and 5 of the loins.

BONES OF THE CHEST, OR THORAX.

The thorax is composed of twelve dorsal vertebræ, twenty-four ribs, and the sternum.

Sternum. Situated in the anterior part of the thorax, between the true ribs.

BONES OF THE PELVIS.

Ossa Innominata. Situated at the sides of the pelvis. Figure, irregular. Each bone is divided into three parts, viz; ilium the uppermost, ischium the lowest, and pubis the anterior. Eminences. The crista of the ilium, from which the oblique and transverse muscles of the abdomen arise—at its posterior part are two spinous processes, which give adhesion to ligaments—at its anterior part are also two spinous processes, the superior gives adhesion to the sartorius, tensor vaginæ femoris, and the ligament of the thigh; the inferior anterior spinous process, about an inch from the former, has arising from it the rectus femoris. The external surface of the iliac portion is covered by the glutæi muscles; the internal by the internal iliac. Upon the internal surface there is a line even with the pubis; this is called linea innominata, or rim of the pelvis; it divides the cavity of the abdomen from the pelvis. Upon the ischiatic portion or ischium are, the tuberosity of the ischi-

um, upon which we sit; the spinous process of the ischium, which projects backwards, and gives adhesion to the uppermost sacro-sciatic ligament; the ramus ischii, which joins the pubis. Upon the public portion, or pubis, are the body, near the socket; the angles and arches of the pubis. Cavities, a notch between the anterior spines of the ilium; an anterior and posterior ischiatic notch; the acetabulum, which receives the head of the os femoris, and the foramen thyroideum, or ovale. Each os innominatum is connected with its fellow anteriorly by symphysis, with the sacrum posteriorly by strong cartilages and ligaments, and with the head of the thigh bone by enarthrosis. Use, to form the pelvis; to retain the gravid uterus in its situation, and to constitute the acetabulum for the thighs.

Os Sacrum. Situated at the posterior part of the pelvis.

Os Coccygis. Situated at the apex of the sacrum.

BONES OF THE SUPERIOR EXTREMITIES.

The bones of the upper extremities are, on each side, the clavicle, scapula, humerus, radius, ulna, bones of the carpus, metacarpus and fingers.

Clavicle. Situated obliquely in the upper and lateral parts of the thorax.

Scapula. Situated in the upper and lateral parts of the back.

Os Humeri. Situated between the scapula and fore-arm.

Cubit, or Ulna. Situated in the inside of the fore-arm, towards the little finger.

Radius. Situated in the external side of the fore-arm, towards the thumb.

Carpus or Wrist. Composed of eight bones, which lie close to each other in a double row. Situated between the fore-arm and metacarpus. Divided into two rows. superior and inferior. In the superior row are (from the thumb to the little finger) os scaphoides, or naviculare; os lunare; os cuneiforme; and os orbiculare, or sub-rotundum. In the lower row os trapezium; os trapezoides; os magnum, and os unciforme.

Metacarpus. Situated between the carpus and fingers. Composed of five longitudinal bones; one of the thumb, and four metacarpal bones of the fingers. Use, to form the middle part of the hand.

Fingers. Situated at the inferior extremity of the metacarpus. Composed of a thumb and four fingers. The thumb has two bones, and each finger three, which are called phalanges. Use, to form the fingers, which are the instruments of touch, defence, and labor.

BONES OF THE INFERIOR EXTREMITIES.

The bones of the inferior extremity are, the femur, patella, tibia, fibula, the bones of the tarsus, metatarsus, and toes.

Femur. Situated between the pelvis and tibia.

Tibia. Situated in the inside of the leg, between the femur and tarsus.

Fibula. Situated in the outer part of the leg, by the side of the tibia.

Patella, or Knee-pan. Situated in the sinus between the condyles of the femur, and above the tibia.

Tarsus. Situated between the leg and metatarsus. Composed of seven bones, placed in a double row.

Metatarsus. Situated between the tarsus and toes. Composed of five longitudinal bones.

Toes. The great toe is composed of two small bones; each toe, of three small bones, called phalanges.

PERIOSTEUM.

Definition. A membrane which invests the external and internal surface of all the bones except the crowns of the teeth. *Names.* Pericranium on the cranium; periorbita on the orbits; perichondrium, when it covers cartilages; and peridesmium when it covers ligaments. Substance fibrous, furnished with arteries, veins, nerves, and absorbent vessels. Use to distribute the vessels on the external and internal surface of bones.

DISEASES OF THE BONES.

[*Exostosis* is one of the diseases peculiar to the bone. It consists in a morbid enlargement of a part or the whole of a bone, and frequently to a considerable extent. The bones of the cranium and the lower jaw are more liable than any other to an attack of exostosis, though any bone in the system may become the seat of this disease. I have seen portions of the lower jaw removed in consequence of the existence of this complaint. Lues venerea seems to be the most frequent cause of exostosis; hence nodes are observed to arise on bones that are superficially covered, especially on the front surface of the tibia.]

Necrosis—This disease is a mortification of the bone. The liability of an attack of gangrene in the bone is as great as in the soft parts.

Caries of bone is of the same nature as ulceration of the soft parts. I have in my possession a set of human bones, that are diseased to such an extent, that they have the appearance of a sponge, and are distorted from their natural shape; the animal portion is entirely exhausted by the process of disease, and the largest bones can be crumbled in pieces with the thumb and finger.

Bone is the foundation of the system; when it ceases to grow the whole system is at its natural height. Each bone serves as a lever to the muscles, which calls it into action by the will, and perform all the various evolutions that the body is capable of.

MUSCLES AND MUSCULAR ACTION.

[Muscle is that soft, fibrous, red colored substance which constitutes so large a portion of the system commonly called flesh. Each muscle has a regular origin and insertion, which is sometimes tendinous, at others fleshy, while some, again, are both fleshy and tendinous. A muscle, originating from a small surface, arises tendinous, and, frequently, a considerable portion of the muscle maintains a tendinous character; the same peculiarity is observed in regard to its insertion; but a flat, coarse muscle, especially if it be short, arises fleshy, and if afforded a wide insertion, continues so throughout its whole length, or becomes tendinous if the insertion is small. The most powerful muscles, or those having much strength required of them, are very firmly fixed to the bone, by insinuating themselves into the various pits and crevices of the rough projection provided for their attachment.

Muscles are composed of successive layers of muscular fibres, connected together by a loose cellular tissue; each fibre appears to run the whole length and maintain the same shape as the muscle itself.

Situated between the muscles is a layer of adipose or fatty substance, giving room for their free action.

The origin and insertion of muscles are never confined to one bone, but they arise from one or more bones, and are inserted into others, sometimes



THE MUSCULAR SYSTEM:

Showing the External Layer of Muscles, after removing the Skin, Fascia,
and Adipous Substance.

passing over several bones in their course. For instance, we have muscles arising from the pelvis and inserted into the tibia (below the knee). Long muscles produce long motions, as walking, jumping, &c., but short motions may be produced by long muscles, as flexion and extension of the fingers, toes, &c.

The muscles are invariably much larger and more firm in persons subject to hard labor than in those who are not; and for this reason, when muscles are called into successive and powerful action, a larger quantity of blood is induced to them than there otherwise would be, invigorating their action, producing a reddish appearance and a greater degree of vascularity; for instance, on observing the arm of a blacksmith, the muscles are very large and hard, and when called into action the muscles are plainly seen to contract and bulge out, while the arm of a person not accustomed to laborious exertion will appear small and soft, and possessed, comparatively, of but little strength. Again, the muscles about the throat of persons accustomed to public speaking, are much larger than in others; and, in fact, this peculiarity is applicable to any one or more muscles of the system, subject to constant exertion.

It is through the agency of the muscles, stimulated to action by the nervous system, that the body is moved in all its various positions. When a muscle contracts it diminishes in length and enlarges in its diameter, and the result is a movement of that part to which the muscle is attached; for instance, a contraction of the muscles on the anterior part of the thigh will throw the leg directly forward. Some muscles, again, are so constructed that they perform various motions, and, consequently, are not wholly called into action at one and the same time; those having an extensive origin and a narrow insertion are of this class. The trapezius, a triangular muscle on the back, draws the shoulder blade upward and backward when the upper fibres act, backward when the middle contracts, and downward and backward when the lower fibres are called into action. Similar muscles are situated on the shoulders and hips. Muscles deprived of nervous stimuli become entirely passive, as in case of an injury of the spine, below which, all or nearly all of the muscles are paralyzed.

The power of muscles when contracting is very great, so much so that their attachments have, in some instances, been torn away, and in others the bone to which the attachment was made, broken. A case of this kind once came under my observation; the patella (knee pan) was broken by endeavoring to raise a heavy weight, proving that more strength existed in the muscle than in the bone.

Muscles also contract very powerfully when not governed by the will; in hysterical fits, for instance, although attacking a person of weakly constitution, yet so powerful is the muscular action, that frequently two or three persons are required to hold the patient while under the influence of the paroxysm.

There are some very important muscles in the system that have no attachment to the bones. I allude to the hollow muscles, such as the heart, the muscular coats of the arteries, intestines, bladder, &c.; these have actions peculiar to the office they are required to perform; some assist in digestion and in the circulation, while others assist in the expulsion of excrementitious substances from the system.

We will now give a brief description of the muscles, their origins and insertions, together with their uses.]

MUSCLES OF THE INTEGUMENTS OF THE CRANIUM.

Occipito-frontalis, arises from the upper ridge of the occipital bone; its aponeurosis covers the upper part of the head. Inserted into the skin of the

eyebrows and root of the nose. Use, to pull the skin of the head backwards, and to raise the eyebrows and skin of the forehead.

Corrugator supercilli, arises above the root of the nose. Inserted into the inner part of the occipito-frontalis. Use, to wrinkle the eyebrows.

MUSCLES OF THE EYELIDS.

Orbicularis palpebrarum, arises from around the outer edge of the orbit. Inserted into the inner corner of the eyes. Use, to shut the eye.

Levator palpebræ superioris, arises from the bottom of the orbit, near the optic foramen. Inserted into the cartilage of the tarsus of the upper eyelid.

Use, to open the eye by raising the upper eyelid.

MUSCLES OF THE EYEBALL.

Rectus superior—rectus inferior—rectus internus—rectus externus, arises from around the optic foramen of the sphænid bone, at the bottom of the orbit. Inserted into the anterior part of the tunica sclerotica. opposite to each other. The action of the rectus superior is to raise the eye upwards—of the inferior, to pull it downwards—of the internus, to turn it to the nose—of the externus, to move it outwards.

Obliquus superior, arises near the optic foramen and passes through a trochlea in the internal canthus of the eye, and is reflected to be inserted into the posterior part of the bulb, between the rectus and the entrance of the optic nerve. Use, to roll the eye, and turn the pupil downwards and outwards.

Obliquus inferior, arises from the ductus nasalis, and is inserted opposite to the former. Use, to roll the eye.

MUSCLES OF THE NOSE AND MOUTH.

Levator labii superioris aëque nasi, arises from the nasal process of the superior maxillary bone. Inserted into the upper lip and ala of the nose. Use, it raises the upper lip and dilates the nostrils.

Levator labii superioris proprius, arises from the upper jaw, under the orbit. Inserted into the middle of the upper lip. Use, to pull the upper lip directly upwards.

Levator anguli oris, arises from the orbilar foramen of the sup. max. bone. Inserted into the orbicularis, at the angle of the mouth. Use, to raise the corner of the mouth.

Zygomaticus major, arises from the os jugale, near the zygomatic future, and runs downwards. Inserted into the angle of the mouth, with the depressor of the lip. Use, to inflate the cheek and raise the angle of the mouth.

Zygomaticus minor, arises above the zygomatics major. Inserted into the angle of the mouth. Use, to raise the angle of the mouth outwards.

Buccinator, arises from the sockets of the last molares, and the coronoid process of the lower jaw. Inserted into the angle of the mouth, and is perforated by the duct of the parotid gland. Use, to contract the mouth, and draw the angle of it outwards and backwards.

Depressor anguli oris, arises from the lower edge of the under jaw, near the chin. Inserted into the angle of the mouth. Use, to draw the corner of the mouth downwards.

Depressor labii inferioris, arises from the inferior part of the lower jaw, next the chin. Inserted into the middle of the under lip. Use, to draw the under lip downwards and outwards.

Orbicularis oris; this muscle surrounds the lips, and is in a great measure formed by the buccinator, zygomatici, and others, which move the lip. Use, to shut the mouth by contracting the lips.

Depressor labii superioris alæque nasi, arises from the sockets of the upper incisor teeth. Inserted into the root of the ala nasi and upper lip. Use, to pull the ala nasi and upper lip down.

Constrictor nasi, arises from the root of one wing of the nose, and goes across to the other. Use, to compress the wings of the nose.

Levator menti vel labii inferioris, arises from the lower jaw, at the root of the incisors. Inserted into the skin in the centre of the chin. Use, to raise the under lip and skin of the chin.

MUSCLES OF THE EXTERNAL EAR.

Superior auris, arises from the tendon of the occipito-frontalis, above the ear. Inserted into the root of the cartilaginous tube of the ear. Use, to draw the ear upwards, and make it tense.

Anterior auris, arises near the back part of the zygoma. Inserted into the eminence behind the helix. Use, to raise this eminence forwards.

Posterior auris, arises from the mastoid process by two, and sometimes three, fasciculi. Inserted into the septum that divides the scapha and concha. Use, to draw the ear back, and stretch the concha.

Helicis major, arises from the upper, anterior, and acute part of the helix. Inserted into the cartilage of the helix, a little above the tragus. Use, to depress the upper part of the helix.

Helicis minor, arises from the inferior and anterior part of the helix. Inserted into the crus of the helix. Use, to contract the fissure.

Tragicus, arises from the outer and middle part of the concha, near the tragus. Inserted into the upper part of the tragus. Use, to depress the concha, and pull the tragus a little outwards.

Antitragus, arises from the root of the inner part of the helix. Inserted into the upper part of the antitragus. Use, to dilate the mouth of the concha.

Transversus auris, arises from the upper part of the concha. Inserted into the inner part of the helix. Use, to draw these parts towards each other.

MUSCLES OF THE INTERNAL EAR.

Laxator tympani, arises from the spinous process of the sphænid bone. Inserted into the long process of the malleus. Use, to draw the malleus obliquely forwards towards its origin.

Tensor tympani, arises from the cartilaginous extremity of the Eustachian tube. Inserted into the handle of the malleus. Use, to pull the malleus and membrane of the tympanum towards the petrous portion.

Stapedius, arises from a little cavern in the petrous portion, near the cells of the mastoid process. Inserted into the posterior part of the head of the stapes. Use, to draw the stapes obliquely upwards towards the cavern.

MUSCLES OF THE LOWER JAW.

Temporalis, arises from the lower part of the parietal bone and os frontis, squamous part of the temporal bone, back part of the os jugale, the temporal process of the sphænid bone, and the aponeurosis which covers it. Inserted into the coronoid process of the lower jaw, its fibres being bundled together and pressed into a small compass, so as to pass under the jugum, or zygoma. Use, to move the lower jaw upwards.

Masseter, arises from the sup. max. bone, near the os jugale, and from the anterior part of the zygoma. Inserted into the angle of the lower jaw upwards to the basis of the coronoid process. Use, to raise and move the jaw a little forwards and backwards.

Pterygoideus internus, arises from the internal pterygoid process of the sphænoid bone. Inserted into the lower jaw, on its inner side, and near its angle. Use, to raise the lower jaw and draw it a little to one side.

Pterygoideus externus, arises from the external pterygoid process. Inserted into the condyloid process of the lower jaw and capsular ligament. Use, to move the jaw, and to prevent the ligature of the jaw from being pinched.

MUSCLES WHICH APPEAR ABOUT THE ANTERIOR PART OF THE NECK.

Platysma myoides, arises from the cellular membrane covering the pectoral and deltoid muscles. Inserted into the side of the chin and integuments of the cheek. Use, to draw the cheeks and skin of the face downwards.

Sterno-cleido-mastoideus, arises from the upper part of the sternum, and fore part of the clavicle. Inserted into the mastoid process, and as far back as the occipital suture. Use, to move the head to one side, and bend it forwards.

MUSCLES SITUATED BETWEEN THE LOWER JAW AND OS HYOIDES.

Digastricus, arises from a fossa at the root of the mastoid process. Inserted into the lower and anterior part of the chin. Use, to draw the lower jaw downwards.

Mylo-hyoideus, arises from the inner surface of the jaw bone. Inserted into the basis of the os hyoides. Use, to move the os hyoides upwards.

Genio-hyoideus, arises from the inside of the chin. Inserted into the basis of the os hyoides. Use, to move the os hyoides upwards.

Genio-glossus, arises from the inside of the chin. Inserted into the tongue, forming part of its substance. Use, to move the tongue in various directions.

Hyo-glossus, arises from the horn, basis, and cartilage of the os hyoides. Inserted into the tongue laterally. Use, to draw the tongue downwards and inwards.

Lingualis, arises from the root of the tongue laterally. Inserted into the extremity of the tongue. Use, to shorten and draw the tongue backwards.

MUSCLES SITUATED BETWEEN THE OS HYOIDES AND TRUNK.

Sterno-hyoideus, arises from the sternum and clavicle. Inserted into the basis of the os hyoides. Use, to draw the os hyoides downwards.

Omo-hyoideus, arises near the coracoid process of the scapula. Inserted into the basis of the os hyoides. Use, to draw the os hyoides downwards.

Sterno-thyroideus, arises from the upper and inner part of the sternum. Inserted into the thyroid cartilage. Use, to pull the thyroid cartilage downwards.

Thyreohyoideus, arises from part of the basis and horn of the os hyoides. Inserted into the side of the thyroid cartilage. Use, to raise the cartilage and depress the bone.

Cricothyroideus, arises from the side of the cricoid cartilage. Inserted

into the inferior horn of the thyroid cartilage. Use, to pull the thyroid cartilage towards the cricoid.

MUSCLES SITUATED BETWEEN THE LOWER JAW AND OS HYOIDES, Laterally.

Stylo-glossus, arises from the apex of the styloid process. Inserted into the side of the root of the tongue. Use, to pull the tongue backwards.

Stylo-hyoideus, arises from the basis, and about the middle of the styloid process. Inserted into the basis of the os hyoides. Use, to draw the os hyoides upwards.

Stylo-pharyngeus, arises from the root of the styloid process. Inserted into the edge of the pharynx, and back of the thyroid cartilage. Use, to dilate the pharynx, and raise the cartilage.

Circumflexus, arises near the Eustachian tube, and passes through the hamulus of the pterygoid process, to be inserted into the velum pendulum palati. Use, to draw the velum pendulum palati obliquely downwards, and stretch it.

Levator palati mollis, arises from the point of the os petrosum, the Eustachian tube, and sphæmoid bone. Inserted into the velum pendulum palati, being expanded upon it. Use, to pull the velum pendulum backwards and upwards.

MUSCLES SITUATED ABOUT THE ENTRY OF THE FAUCES.

Constrictor isthmus faucium, arises near the root of the tongue, on each side, and goes round, to be inserted into the middle of the velum pendulum palati, near the uvula. Use, to raise the tongue, and draw the velum towards it.

Palato-pharyngeus, arises from the middle of the soft palate, goes round the entry of the fauces, the tendon of the circumflexus palati, and velum pendulum palati, to be inserted into the upper and posterior part of the thyroid cartilage. Use, to contract the arch of the fauces.

Azygos uvulae, arises from the commissure of the ossa palati. Inserted into the extremity of the uvula. Use, to shorten and raise the uvula.

MUSCLES SITUATED ON THE POSTERIOR PART OF THE PHARYNX.

Constrictor pharyngis inferior, arises from the cricoid and thyroid cartilages. Inserted into the middle of the pharynx. Use, to compress part of the pharynx.

Constrictor pharyngis medius, arises from the horns and appendix of the os hyoides. Inserted into the ambit of the pharynx. Use, to compress the pharynx, and draw the os hyoides upwards.

Constrictor pharyngis superior, arises from the pterygoid process, the lower jaw, and the cuneiform process of the os occipitis. Inserted into the middle of the pharynx. Use, to move the pharynx upwards and forwards, and to compress its upper part.

MUSCLES SITUATED ABOUT THE GLOTTIS.

Crico-arytænoides posticus, arises from the cricoid cartilage posteriorly. Inserted into the back of the arytænoid cartilage. Use, to open the glottis.

Crico-arytænoides lateralis, arises from the side of the cricoid cartilage. Inserted into the side of the arytænoid cartilage. Use, to open the glottis.

Thyreo-arytænoides, arises from the back of the thyroid cartilage. Inserted into the fore part of the arytenoid cartilage. Use, to draw the arytenoid cartilage forward.

Arytænoides obliquus, arises from the root of one arytenoid cartilage. Inserted into the extremity of the other. Use, to draw them towards each other.

Arytænoides transversus, arises from one of the arytenoid cartilages. Inserted into the other arytenoid cartilage. Use, to shut the glottis.

Tyreo-epiglottideus, arises from the thyroid cartilage. Inserted into the side of the epiglottis. Use, to pull the epiglottis obliquely downwards.

Arytæno-epiglottideus, arises from the upper part of the arytenoid cartilage laterally. Inserted into the side of the epiglottis. Use, to move the epiglottis outwards.

MUSCLES SITUATED ON THE ANTERIOR PART OF THE ABDOMEN.

Obliquus descendens externus, arises from the lower edges of the eight inferior ribs near their cartilages. Inserted into the linea alba, ossa pubis, and spine of the ilium. Use, to compress the abdomen.

Obliquus ascendens internus, arises from the spinous processes of the three last lumbar vertebræ, back of the sacrum, and spine of the ilium. Inserted into the cartilages of all the false ribs, linea alba, pubis, and sternum, by a flat tendon. Use, to compress the abdomen.

Transversalis abdominis, arises from the cartilages of the seven lower ribs, and the transverse processes of the four lower lumbar vertebræ and spine of the ilium. Inserted into the linea alba throughout its whole length, and into the ensiform cartilage. Use, to compress the abdominal viscera.

Rectus abdominis, arises from the outside of the sternum and xyphoid cartilage. Inserted into the side of the symphysis of the pubis. Use, to compress the abdomen and bend the trunk.

Pyramidalis, arises from the anterior upper part of the pubis. Inserted into the linea alba, below the umbilicus. Use, to assist the lower portion of the rectus.

MUSCLES OF THE ANUS.

Sphincter ani, arises from the skin and fat surrounding the anus on both sides. Inserted into the perineum, acceleratores urinæ, and transversus perinæi. Use, to shut the passage through the anus into the rectum.

Levator ani, arises from the internal surface of the pubis, ilium, and ischium, of both sides, in a radiated manner. Inserted into the sphincter ani, acceleratores urinæ, and os coccygis, and surrounds the rectum, neck of the bladder, &c., like a funnel. Use, to draw the rectum up after the dejection of the fæces, and to assist in shutting it.

MUSCLES SITUATED WITHIN THE PELVIS.

Obturator internus, arises from the foramen ovale obturator ligament, ilium, ischium, and pubis. Inserted into a large pit between the trochanters of the femur. Use, to roll the femur obliquely outwards.

Coccygeus, arises from the spinous process of the ischium. Inserted into the extremity of the sacrum and os coccygis. Use, to move the coccyx forwards and inwards.

MUSCLES SITUATED WITHIN THE CAVITY OF THE ABDOMEN.

Quadratus lumborum, arises from the posterior part of the spine of the ilium. Inserted into the transverse apophyses of the loins and last spurious rib. Use, to support the spine and draw it to one side.

Psoas parvus, arises from the transverse process of the last dorsal vertebræ. Inserted into the brim of the pelvis, near the place of the acetabulum. Use, to bend the loins forwards.

Psoas magnus, arises from the bodies and processes of the last dorsal and all the lumbar vertebræ. Inserted into the os femoris, a little below the trochanter minor. Use, to bend the thigh forwards.

Iliacus internus, arises from the internal surface of the spine of the ilium. Inserted into the femur in common with the psoas magnus. Use, to assist the psoas magnus.

MUSCLES SITUATED ON THE ANTERIOR PART OF THE THORAX.

Pectoralis major, arises from the clavicle, sternum, and seven true ribs. Inserted into the upper and inner part of the humerus. Use, to draw the arm forwards, or obliquely forwards.

Subclavius, arises from the cartilage of the first rib. Inserted into the under surface of the clavicle. Use, to move the clavicle downwards.

Pectoralis minor, arises from the third, fourth, and fifth ribs. Inserted into the coracoid process of the scapula. Use, to roll the scapula.

Serratus major anticus, arises from the eight superior ribs. Inserted into the basis of the scapula. Use, to bring the scapula forwards.

MUSCLES SITUATED BETWEEN THE RIBS AND WITHIN THE THORAX.

Intercostales externi, arises from the lower edge of each upper rib. Inserted into the superior edge of each lower rib. Use, to elevate the ribs.

Intercostales interni; like the former, the fibres are directed from behind forwards.

Triangularis, arises from the middle and inferior part of the sternum. Inserted into the cartilages of the five last true ribs. Use, to depress the cartilages of the ribs.

MUSCLES SITUATED ON THE ANTERIOR PART OF THE NECK, CLOSE TO THE VERTEBRÆ.

Longus colli, arises from the bodies of the three upper dorsal and transverse processes of the four last cervical. Inserted into the anterior tubercle of the dentatus. Use, to pull the neck to one side.

Rectus internus capitis major, arises from the transverse processes of the five last cervical vertebræ. Inserted into the cuneiform process of the os occipitis. Use, to bend the head forwards.

Rectus internus capitis minor, arises from the fore part of the atlas. Inserted into the os occipitis, near the condyloid process. Use, to assist the former.

Rectus capitis lateralis, arises from the transverse process of the atlas. Inserted into the os occipitis, near the mastoid process. Use, to move the head to one side.

MUSCLES SITUATED ON THE POSTERIOR PART OF THE TRUNK.

Trapezius, arises from the os occipitis and the spinous processes of all the vertebræ of the neck and back. Inserted into the clavicle, part of the acromion, and the spine of the scapula. Use, to move the scapula, bend the neck, and pull the head backwards.

Latissimus dorsi, arises from the spine of the ilium, spinous processes of the sacrum, lumbar and inferior dorsal vertebræ, and adheres to the scapula and inferior false ribs. Inserted into the os humeri, between the two tuberosities in the edge of the groove for the tendon of the biceps muscle. Use, to draw the os humeri backwards, and to roll it upon its axis.

Serratus posticus inferior, arises from the spinous processes of the two last dorsal and three lumbar vertebræ. Inserted into the lower edge of the three or four lowermost ribs, near their cartilages. Use, to draw the ribs outwards, downwards, and backwards.

Rhomboideus, arises from the spinous processes of the last three cervical, and first four dorsal vertebræ. Inserted into the basis of the scapula, at its upper and lower part. Use, to move the scapula upwards and backwards.

Splenius, arises from the spines of the four last cervical, and four superior dorsal vertebræ. Inserted into the two first cervical vertebræ, and the side of the os occipitis. Use, to move the head backwards, and also to one side.

Serratus superior posticus, arises from the spinous processes of the three last cervical, and two superior dorsal vertebræ. Inserted into the second, third, and fourth ribs, by three neat fleshy tongues. Use, to expand the thorax by elevating the ribs.

Spinalis dorsi, arises from two spinous processes of the loins, and three lower of the back. Inserted into all the spinous processes of the back, except the first. Use, to extend the vertebræ.

Levatores costarum, arises from the transverse processes of the last cervical and the dorsal vertebræ. Inserted into the angles of the ribs. Use, to lift the ribs upwards.

Sacro-lumbalis, arises from the sacrum, spine of the ilium, and the spinous and transverse processes of the lumbar vertebræ. Inserted into the lower edge of each rib by a flat tendon. Use, to draw the ribs downwards, to move the body upon its axis, to assist the long. dorsi, and to turn the neck back, or to one side.

Longissimus dorsi, arises from the same parts as the former, and by one common broad tendon. Inserted into the transverse processes of all the dorsal and one cervical vertebræ. Use, to stretch the vertebræ of the back, and keep the trunk erect.

Complexus, arises from the transverse processes of the four inferior cervical, and seven superior dorsal vertebræ. Inserted into the middle of the os occipitis, at its tubercle. Use, to draw the head backwards.

Trachelo-mastoideus, arises from the transverse processes of the five lower cervical and three upper dorsal vertebræ. Inserted into the os occipitis, behind the mastoid process of the temporal bone. Use, to draw the head backwards.

Levator scapulæ, arises from the transverse processes of the four superior cervical vertebræ. Inserted into the upper angle of the scapula. Use, to move the scapula forwards and upwards.

Semi-spinalis dorsi, arises from the transverse processes of the 7th, 8th, 9th and 10th dorsal vertebræ. Inserted into the spinous processes of the four superior dorsal and the last cervical vertebræ. Use, to extend the spine obliquely backwards.

Multifidus spinæ, arises from the sacrum, ilium, oblique and transverse processes of the lumbar, the transverse of the dorsal, and four cervical vertebræ. Inserted into the spinous processes of the lumbar, dorsal, and cervical vertebræ, except the atlas. Use, to extend the back and draw it backwards or to one side, and prevent the spine from being too much bent forwards.

Semi-spinalis colli, arises from the transverse processes of the six upper dorsal vertebræ. Inserted into the spinous processes of the five middle cervical. Use, to stretch the neck obliquely backwards.

Transversalis colli, arises from the transverse processes of the five upper dorsal vertebra. Inserted into the transverse processes of the cervical vertebræ. Use, to turn the neck obliquely backwards, and to one side.

Rectus capitis posticus major, arises from the transverse process of the second cervical vertebræ. Inserted into the lower ridge of the os occipitis. Use, to extend the head and draw it backwards.

Rectus capitis posticus minor, arises from the first vertebra of the neck. Inserted into the os occipitis at its tubercle. Use, to assist the rectus major.

Obliquus capitis superior, arises from the transverse process of the atlas. Inserted into the end of the lower occipital ridge. Use, to draw the head backwards.

Obliquus capitis inferior, arises from the spinous process of the dentatus. Inserted into the transverse process of the atlas. Use, to draw the face to one side.

Scalenus, arises from the upper surface of the first and second ribs. Inserted into the transverse processes of the cervical vertebræ. Use, to move the neck forwards or to one side.

Interspinales, arises between the spinous processes of the six inferior cervical vertebræ. Inserted into the spinous processes of the vertebræ above. Use, to draw the spinous processes towards each other.

Inter-transversales, arises between the transverse processes of the vertebræ. Inserted into the transverse processes of the vertebræ above. Use, to draw the transverse processes towards each other.

MUSCLES OF THE SUPERIOR EXTREMITIES.

Supra-spinatus, arises from the basis, spine, and upper edge of the scapula. Inserted into a large tuberosity at the head of the os humeri. Use, to raise the arm.

Infra-spinatus, arises from the cavity below the spine of the scapula. Inserted into the upper part of the same tuberosity. Use, to roll the os humeri outwards.

Teres minor, arises from the inferior edge of the scapula. Inserted into the greater tuberosity of the humerus. Use, to assist the former.

Teres major, arises from the inferior angle and edge of the scapula. Inserted into the side of the groove for the long tendon of the biceps. Use, to assist in rotating the arm.

Deltoides, arises from the clavicle, and the acromion and spine of the scapula. Inserted into the anterior and middle part of the os humeri. Use, to raise the arm.

Coraco-brachialis, arises from the coracoid process of the scapula. Inserted into the middle and inner side of the os humeri. Use, to roll the arm forwards and upwards.

Subscapularis, arises from the basis, superior and inferior edge of the scapula. Inserted into the protuberance at the head of the os humeri. Use, to roll the arm inwards.

MUSCLES SITUATED ON THE OS HUMERI.

Biceps flexor cubiti, arises from two heads, one from the coracoid process, the other, called the long head, from the edge of the glenoid cavity of the scapula. Inserted into the tuberosity at the upper end of the radius, at its fore part, and a little below its neck. Use, to bend the fore-arm, which it does with great strength, and to assist the supinators.

Brachialis internus, arises from the os humeri at each side of the tendon of the deltoides. Inserted into the coronoid process of the ulna. Use, to assist in bending the fore-arm.

Triceps extensor cubiti, arises from the neck of the scapula, and the neck and middle of the humerus. Inserted into the upper and outer part of the olecranon. Use, to extend the fore-arm.

Anconeus, arises from the external condyle of the humerus. Inserted into the back part or ridge of the ulna. Use, to assist in extending the fore-arm.

MUSCLES SITUATED ON THE FORE-ARM.

Supinator radii longus, arises from the external condyle of the humerus. Inserted into the radius, near the styloid process. Use, to assist in turning up the palm of the hand.

Extensor carpi radialis longior. Arises from the external condyle of the humerus. Inserted into the metacarpal bone of the fore-finger. Use, to extend the wrist.

Extensor carpi radialis brevior, arises from the external condyle of the humerus. Inserted into the metacarpal bone of the middle finger. Use, to assist the former.

Extensor digitorum communis, arises from the external condyle of the os humeri. Inserted into the back of all the bones of the fingers. Use, to extend the fingers.

Extensor minimi digiti, arises from the outer condyle of the humerus. Inserted into the second joint of the little finger. Use, to assist in extending the fingers.

Extensor carpi ulnaris, arises from the outer condyle of the os humeri. Inserted into the metacarpal bone of the little finger. Use, to assist in extending the wrist.

Flexor carpi ulnaris, arises from the inner condyle of the humerus and olecranon. Inserted into the os pisiforme, at its fore part. Use, to assist in bending the hand.

Palmaris longus, arises from the internal condyle of the os humeri. Inserted into the annular ligament of the wrist, and there forms the aponeurosis of the hand. Use, to bend the hand.

Flexor carpi radialis, arises from the internal condyle of the os humeri. Inserted into the metacarpal bone of the fore-finger. Use, to bend the hand.

Pronator radii teres, arises from the internal condyle of the humerus and coronoid process of the ulna. Inserted into the outer ridge of the radius, about the middle of its length. Use, to roll the hand inwards.

Supinator radii brevis, arises from the outer condyle of the humerus, and edge of the ulna. Inserted into the anterior, inner, and upper part of the radius. Use, to roll the radius outwards, and assist the anconeus.

Extensor ossis metacarpi pollicis manus, arises from the middle of the ulna, interosseous ligament, and radius. Inserted into the os trapezium, and first bone of the thumb. Use, to stretch the first bone of the thumb outwards.

Extensor primi internodii, arises near the middle of the ulna, interosseous ligament, and radius. Inserted into the convex part of the second bone of the thumb. Use, to extend the second bone of the thumb outwards.

Extensor secundi internodii, arises from the back of the ulna and interosseous ligament. Inserted into the third and last bone of the thumb. Use, to stretch the thumb obliquely backwards.

Indicator, arises from the middle of the ulna. Inserted into the metacarpal bone of the fore-finger. Use, to extend the fore-finger.

Flexor digitorum sublimis, arises from the inner condyle of the os humeri, coronoid process of the ulna, and upper part of the radius. Inserted into the second bone of each finger, after being perforated by the tendons of the profundus. Use, to bend the second joint of the fingers upon the first, and the first upon the metacarpal bones.

Flexor digitorum profundus vel perforans, arises from the upper part of the ulna, and interosseous ligament. Inserted into the fore part of the last bone of each of the fingers. Use, to bend the last joint of the fingers.

Flexor longus pollicis, arises from the upper and fore part of the radius. Inserted into the last joint of the thumb. Use, to bend the last joint of the thumb.

Pronator radii quadratus, arises from the inner and lower part of the ulna. Inserted into the radius opposite to its origin. Use, to roll the radius inwards.

MUSCLES SITUATED CHIEFLY ON THE HAND.

Ambricales, arises from the tendons of the flexor profundus. Inserted into the tendons of the extensor digitorum communis. Use, to bend the first and extend the second phalanx.

Flexor brevis pollicis manus, arises from the os trapezoides, ligament of the wrist, and the os magnum. Inserted into the ossa sesamoidea and second bone of the thumb. Use, to bend the second joint of the thumb.

Opponens pollicis, arises from the os scaphoides and ligament of the wrist. Inserted into the first bone of the thumb. Use, to bend the thumb.

Abductor pollicis manus, arises from the annular ligament, and os trapezium. Inserted into the root of the first bone of the thumb. Use, to draw the thumb from the fingers.

Abductor pollicis manus, arises from the metacarpal bone of the middle finger. Inserted into the root of the first bone of the thumb. Use, to pull the thumb towards the fingers.

Abductor indicis manus, arises from the first bone of the thumb, and os trapezium. Inserted into the first bone of the fore-finger posteriorly. Use, to move the fore-finger towards the thumb.

Palmaris brevis, arises from the annular ligament, and palmar aponeurosis. Inserted into the metacarpal bone and skin of the little finger. Use, to contract the palm of the hand.

Abductor minimi digiti manus, arises from the annular ligament and os pisiforme. Inserted into the first bone of the little finger. Use, to draw the little fingers from the rest.

Abductor minimi digitis, arises from the os cuneiform and carpal ligament. Inserted into the metacarpal of the little finger. Use, to move that bone towards the rest.

Flexor parvus minimi digiti, arises from the annular ligament and os cuneiforme. Inserted into the first bone of the little finger. Use, to draw the little finger from the rest.

Interossei interni and *interossei externi*, arise between the metacarpal

bones, to the sides of which they are attached. Use, to extend the fingers, and move them towards the thumb.

MUSCLES OF THE INFERIOR EXTREMITIES.

Pectinalis, arises from the anterior edge of the os pubis. Inserted into the upper part of the linea aspera of the femur. Use, to bend the thigh.

Triceps adductor femoris. { *Adductor longus femoris*, arises from the upper and fore part of the pubis. Inserted into the middle and back part of the linea aspera. Use, to bend the thigh.
Adductor brevis femoris, arises from the fore part and ramus of the os pubis. Inserted into the inner and upper part of the linea aspera. Use, to bend the thigh, and move it inwards.
Adductor magnus femoris, arises from the lower and fore part of the ramus of the pubis. Inserted into the whole length of the linea aspera. Use, to move the thigh inwards, and assist in bending it.

Obturator externus, arises from the obturator ligament, and half of the thyroid hole. Inserted into the femur near the root of the great trochanter. Use, to pull forwards and rotate the thigh.

Gluteus maximus, arises from the spine of the ilium, posterior sacro-schiatic ligaments, and os sacrum. Inserted into the upper part of the linea aspera of the femur. Use, to extend the thigh, and assist in its rotatory motion.

Gluteus medius, arises from the spine and superior surface of the ilium. Inserted into the great trochanter of the os femoris. Use, to assist the gluteus maximus.

Gluteus minimus, arises from the outer surface of the ilium and border of its great notch. Inserted into the root of the great trochanter. Use, to assist the former.

Pyriformis, arises from the anterior part of the os sacrum. Inserted into a cavity at the root of the great trochanter. Use, to roll the thigh outwards.

Gemini, arises from the spine and tuberosity of the ischium. Inserted into the same cavity as the pyriformis. Use, to roll the thigh outwards.

Quadratus femoris, arises from the tuberosity of the ischium. Inserted into a ridge between the two trochanters. Use, to move the thigh outwards.

MUSCLES SITUATED ON THE THIGH.

Facialis, arises from the upper spinous process of the ilium. Inserted into the inner side of the membranous fascia which covers the thigh. Use, to stretch the fascia.

Sartorius, arises from the upper spinous process of the ilium. Inserted into the upper and inner part of the tibia. Use, to bend the leg inwards.

Gracilis, arises from the fore part of the ischium and pubis. Inserted into the upper and inner part of the tibia. Use, to bend the leg.

Rectus femoris, arises from the lower spinous process of the ilium, and edge of the acetabulum. Inserted into the upper and fore part of the patella. Use, to extend the leg.

Vastus externus, arises from the root of the great trochanter, and linea aspera. Inserted into the upper and lateral part of the patella. Use, to extend the leg.

Vastus internus, arises from the trochanter minor, and the linea aspera.

Inserted into the upper and inner part of the patella. Use, to extend the leg.

Cruralis, arises from the anterior part of the lesser trochanter. Inserted into the upper part of the patella. Use, to extend the leg.

Semi-tendinosus, arises from the tuberosity of the ischium. Inserted into the upper and inner part of the tibia. Use, to bend and draw the leg inwards.

Semi-membranosus, arises from the tuberosity of the ischium. Inserted into the back part of the head of the tibia. Use, to bend the leg.

Biceps flexor cruris, arises from the tuberosity of the ischium. Inserted into the upper and back part of the tibia, forming the outer hamstring. Use, to bend the leg.

Popliteus, arises from the external condyle of the thigh bone. Inserted into the upper and inner part of the tibia. Use, to assist in bending the leg.

MUSCLES SITUATED ON THE LEG.

Gastrocnemius externus, arises from the internal and external condyle of the femur. Inserted into the os calcis, with the tendon of the soleus. Use, to extend the foot.

Gastrocnemius internus, arises from the head of the fibula, and back part of the head of the tibia. Inserted into the os calcis by a common tendon, which is called tendo-Achillis. Use, to extend the foot.

Plantaris, arises from the outer condyle of the os femoris and capsular ligament. Inserted into the os calcis, near the tendo-Achillis. To assist in extending the foot.

Tibialis anticus, arises from the upper and fore part of the tibia. Inserted into the os cuneiforme internum. Use, to bend the foot.

Tibialis posticus, arises from the back part of the tibia, interosseous ligament, and adjacent part of the fibula. Inserted into the middle cuneiform bone, and upper part of the os naviculare. Use, to move the foot inwards.

Peroneus longus, arises from the head of the tibia, and upper and outer part of the fibula. Inserted into the metatarsal bone of the great toe. Use, to move the foot outwards.

Peroneus brevis, arises from the outer and fore part of the fibula. Inserted into the metatarsal bone of the little toe. Use, to assist the peroneus longus.

Extensor longus digitorum pedis, arises from the upper part of the tibia, interosseous ligament, and inner edge of the fibula. Inserted into the first joint of the smaller toes by four tendons. Use, to extend the toes, and separate them from one another.

Extensor proprius pollicis pedis, arises from the upper and fore part of the tibia. Inserted into the convex surface of the bones of the great toe. Use, to extend the great toe.

Flexor longus perforans, arises from the upper and inner part of the tibia. Inserted into the last bones of all the toes, except the great toe, by four tendons. Use, to bend the last joint of the toes.

Flexor longus pollicis pedis, arises a little below the head of the fibula. Inserted into the last bone of the great toe. Use, to bend the great toe.

MUSCLES CHIEFLY SITUATED ON THE FOOT.

Extensor brevis digitorum pedis, arises from the upper and anterior part of the os calcis. Inserted into the first bone of the great and other toes, except the little. Use, to extend the toes.

Flexor sublimis, arises from the lower part of the os calcis. Inserted into the second phalanx of each of the small toes, by four tendons, which are perforated by those of the flex. long. dig. ped. Use, to bend the second joint of the toes.

Lumbricales pedis, arises from the tendons of the flexor longus digitorum pedis. Inserted into the tendinous expansion at the upper part of the toes. Use, to draw the toes inwards.

Flexor brevis pollicis pedis, arises from the fore part of the os calcis, and external cuneiform bone. Inserted into the first joint of the great toe by two tendons. Use, to bend the first joint of the great toe.

Abductor pollicis pedis, arises from the inner and lower part of the os calcis. Inserted into the first joint of the great toe. Use, to move the great toe from the rest.

Adductor pollicis pedis, arises from the ligament extended from the os calcis to the os cuboides. Inserted into the outer sesamoid bone, or first joint of the great toe. Use, to draw the great toe nearer to the rest, and to bend it.

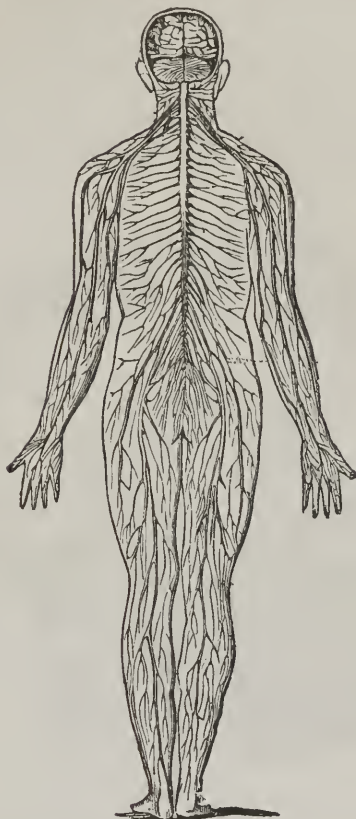
Abductor minimi digiti pedis, arises from the tubes of the os calcis, and metatarsal bone of the little toe. Inserted into the first joint of the little toe externally. Use, to draw the little toe outwards.

Flexor brevis minimi digiti pedis, arises from the root of the metatarsal bone of the little toe. Inserted into the root of the first bone of the little toe. Use, to bend the little toe.

Transversales pedis, arises from the ligament connecting the bones of the tarsus. Inserted into the tendon of the adductor pollicis. Use, to contract the foot.

Interossei pedis interni and *interossei pedis externi* arise and are inserted between the metatarsal bones. Use, to draw the smaller towards the great toe, and assist in extending the toes.

THE NERVOUS SYSTEM AND ITS FUNCTIONS.



[The above engraving gives a posterior view of the nervous system, the cerebrum, and cerebellum.]

The brain and spinal marrow (or medulla spinalis) is the first origin of all those white cords stretching through all parts of the system however far they may extend or wherever they may stop. There are more nerves arising from the spinal cord than from the brain, yet those that arise from the brain are more essential to the different senses than the former. The brain is situated within the skull and divided into three great divisions, viz : cerebrum, cerebellum, and medulla oblongata. The cerebrum occupies all the upper and fore part of the head, while the cerebellum, which in the human species is only about one fourth as large, occupies the posterior and inferior region. The medulla oblongata is the point where the medulla spinalis begins and passes out of the skull and down the spinal column. I shall not attempt to give a description of the different parts of the brain, as I do not consider it necessary to an explanation of the subject of this chapter. I would advise every person to study this curious mechanism, which composes such an important part of our system, and of which so much has been said both by anatomists and physiologists.

The following engraving represents a vertical section of the brain; the digitations of the cineritious, or ash-colored substance of the brain, is shown coming down from above; and the medullary, or white substance, shooting up between the cortical digitations, making the gray and white portions of the brain appear as though they were dovetailed together, from the letter *m* the white radiating lines going up to the gray parts above *o* is the third ventricle; *n* shows the arborescence of the cerebellum, or the posterior brain. It is in this region of the brain that phrenologists locate the animal propensities. The engraving was originally owned by Mr. Sherwood.



There are nine pairs of nerves which have their origin from the brain, and when the brain is raised they may all be seen at its base (although arising from different parts of the brain) and passing out through different foramenæ in the skull, and terminating at different points. I will give the names, with a short description of the nerves that are seen at the base of the brain, and their terminations.

The first pair, or *olfactory* nerves, arise from the corpora striata, deep in the brain, and terminate, in the first place in a blunt end, something like the end of a finger; this pulp lies on the cribriform, or seive-like plate of the ethmoid bone, which is situated at the root of the nose, and is full of cells (if this bone could be spread out it would cover a large surface). From the under side of this large nerve, a great many small ones are sent off, which pass through this plate and terminate on the spongy bones of the nose. This nerve possesses the true sense of smell.

The second pair, or *optic* nerves, arises like the former, deep in the brain, partly from the thalami nervorum opticorum, and partly from the tubercula quadrigemina; as they pass forward, they unite just in front of the pituitary gland, on the fore part of the cella turcica, diverging from their union. In my opinion it is impossible to tell whether they cross each other or not. I have,

by careful dissection, endeavored to satisfy myself on this point, as many writers and demonstrators of anatomy have disputed on this subject, whose ideas have failed, I think, for want of facts; but let that be as it may, they certainly unite and form that union. There are two nerves of the same size passing off, whether they are of the same character after they divide as they were before uniting, I am unable to determine; so far as anatomy is concerned, there does not appear to be any difference; but leaving that point, we will proceed with their course. After dividing, they pass forward and through the foramen opticum of the sphenoid bone, whence it immerses into the orbit, or socket of the eye; it is there imbedded in fat for some distance, and within the origin of the muscles that move the eyeball in its various ways; finally reaches the sclerotic coat, which it perforates and reaches the inside of the eye where it expands into a thin tremulous filament that lines nearly all the inside of the eyeball. It is here called the retina, and is the true organ of sight. All images that we see are formed on the retina, and the sensibility there produced is carried to the brain by the medium of the optic nerve. Destroy the functions of this nerve and you produce immediate blindness.

The third pair, or *motores oculorum*, arises from the crura cerebri, and passes forward along the base of the brain, and out through the foramen lacerum, or a fissure that opens into the orbit, and terminates on the muscles of the eyeball.

The fourth pair, or *nervi pathetici*, arises from the valvula cerebri, and is first seen between the cerebrum and cerebellum, passing by the side of the pons varolii, along the base of the brain, and out through the foramen lacerum ending on the superior oblique muscle of the eye.

The fifth pair, or *trigemini*. This large nerve arises by a number of filaments or roots from the crus cerebelli, where the cerebellum unites with the pons varolii (the pons varolii is by some anatomists called nodus cerebria: it is that part of the brain where the cerebrum begins to unite with the cerebellum, and finally terminates in the medulla oblongata). All those filaments unite together and form a swelling or ganglion. It then divides into three distinct nerves that take different courses.

The first branch of the fifth pair is called *ramus oculorum*; this takes the same course as the fourth nerve, dividing into three branches, that terminate on the muscles of the eye and lachrymal gland; a small branch comes out of the socket of the eye, terminating on the forehead; some small branches get to the nose and sclerotic coat of the eye.

Second branch of the fifth pair, *ramus maxillaris superiori*; this passes out of the skull through the foramen ovale, and there is soon divided into many branches, some going to the upper jaw and teeth, others passing through different parts of the spongy bones of the face and coming out upon the face. One branch called the vidian, gets into the socket of the eye and enters the cranium through the foramen lacerum, running along on the base of the brain, enters the hiatus fallopii of the temple, here gets into the cavity of the ear, and after winding around among the bones of the internal ear, passes out again at the ear and joins the gustatory nerve that goes to the tongue, and is finally lost in the submaxillary gland. This singular nerve, in taking this long and circuitous route, joins itself to many nerves in its course, and branches off again, it runs with the nerves of motion, enters into the organ of hearing, then joins with the nerve of taste and appears to get tired of them all, and stops in the salivary gland. It is a difficult thing to trace all the nerves of the second branch of the fifth pair, being distributed, as they are, all about the face, and in their course freely uniting and again dividing in different directions.

The third branch of the fifth pair, or *ramus maxillary inferior*, passes out through the foramen ovale and is distributed to the lower jaw and tongue. The part that goes to the tongue is called the gustatory nerve.

The sixth pair, or *motories oculorum externi*, arises from the pons varoli and corpora pyramidalia, runs along the base of the brain and finally passes out through the foramen lacerum, and terminates on the outer muscles of the eye. This nerve gives off a small twig while in the skull that unites with a branch of the second branch of the 5th pair; these two small branches are the starting point of the great sympathetic, or intercostal nerve.

The seventh pair, or *nervi auditorii*. These should be considered by anatomists as two separate nerves; they are first seen near the pons varolii, corpora olivaria, and crura cerebelli: they here divide, and one branch is called portia dura, or facial nerve, the other portia mollis, or auditory nerve. They both enter the internal auditory foramen (this is a passage that goes to the internal ear).

The portia mollis is distributed to the internal organs of hearing, while the portia dura comes out near the angle of the jaw and is distributed to the principal muscles of the face.

The eighth pair, or *par vagum*. This is likewise called the *pneumogastric nerve*, and arises by numerous slips, from the side of the corpora olivaria and medulla oblongata, and passes out from the brain through a foramen (foramen lacerum posterior), with the internal jugular vein; this foramen is situated in the basal and posterior part of the skull; the nerve passes down on the side and fore part of the neck, in the same sheath with the carotid artery and jugular vein. It sends off branches that join other nerves in its whole course, and assists in forming a number of plexuses. When it gets into the chest and forms a plexus with the intercostal nerve, called cordie plexus of nerves, it then runs behind the roots of the lungs, and then forms, with the great sympathetic nerve, the anterior and posterior pulmonary plexus. The par vagum on each side runs near together, and sends twigs to each other, and finally perforates the diaphragm, and reaches the stomach, and some small filaments on the right side go to the liver and there terminate.

The ninth pair, or *lingualis*, arises from the medulla oblongata; it passes out the anterior condyloid hole (this is a small aperture close by the side of the great hole where the spinal marrow comes out) and runs along by the side of the under jaw and terminates in the tongue.

We will next examine the *medulla spinalis*, or the spinal marrow. This is a process of the brain, being of the same substance. Given off from it we have twenty-nine pairs of nerves, as we have between each vertebra, on each side, a nerve. There are seven *cervical* twelve *dorsal*, five *lumbar*, and five *sacral* pairs of nerves, each of which arises by two roots, one from the back the other from the fore part of the spinal marrow.

The *cervical nerves* send their branches to the muscles about the neck, arm and chest, uniting with many others. From the third, fourth, and fifth *cervical* nerves arises the *phrenic nerve*. This passes down the fore part of the neck, into the thorax, and finally terminates in the diaphragm.

The *dorsal nerves* each gives a twig to the great sympathetic nerve, then follows the ribs to the thorax giving off twigs in their course.

The *lumbar nerves* are given off in the same way as the former; they go to the muscles about the back and join with the great sympathetic nerve. The great nerves of the thigh have their origin from the lumbar nerves.

The *sacral nerves* come off from the lower part of the spinal marrow, and are distributed about the pelvis.

The *anterior crural nerve* arises from the first, second, third, and fourth lumbar nerves, and goes down on the fore part of the thigh. The *obturator nerve* arises from the same source as the crural, and passes on to the hips.

The *sciatic nerve* arises from the two lower lumbar and three upper sacral nerves, and passes down on the back part of the thigh; when it gets under the knee it divides into three considerable branches; first the *paronial*, then

the anterior and posterior *tibial* nerves, which finally terminate about the ankle and foot, giving, in their course, many branches to different muscles.

The *great sympathetic nerve* arises within the cranium and from the fifth and sixth pair of nerves. It passes down with the carotid artery on the fore part of the neck, and enters the thorax, keeping close by the side of the spine; while in the thorax, it gives off a branch called the *splanchnic nerve*; this branch enters the abdomen, and forms the great *semilunar ganglion*; it then sends branches to all the abdominal viscera. The sympathetic then passes along the spine and finally terminates in the lower part of the sacrum. From the time it leaves the brain, until it terminates, it gives off many branches to other nerves.

We will now return to the neck and speak of the nerves that go to the arms, which come from the lower part of the cervical nerve, and after forming the arm-pit, or *axillary nerves*, give off at this point many nerves to different parts about the shoulder and chest; they then pass down on the arm two or three in number, and are called the *brachial nerve*. As they pass down on the lower part of the arm, they assume the name of *ulnar, radial, and medial nerves*, giving off branches in their course, and finally terminating in the fingers.

By this very short description of the nervous system the reader may form some idea how minutely the nerves are distributed over every part of the system, although to describe this system as it should be it would require more space than half the size of this volume.

The nerves are the connecting link between all the other parts of the system. Digestion could not go on, circulation would cease, and even the muscles could have no power to move without them. Wherever there is a living, moving, and organised being, there must be nerves; it is by the stimulus applied to them that they produce any motion, however small it may be. It is through them we are affected by external impressions, such as feeling, hearing, and seeing. If we put any substance on our tongue that is grateful to the palate, it conveys to the brain, and from that to the mind, a pleasing sensation by the agency of the nerves; if we swallow the substance according to the dictates of that one sense, which is taste, the stomach not being entirely under the control of the will, although the first sense has been deceived, rejects it, showing that though one sense may be deceived, they cannot all be; our external senses are not so correct as our internal, for one is controlled by a power peculiar to itself, while the others are affected by objects that are applied to them.

It may be necessary here to state that there are five senses applied to the human system; first, the sense of smelling, which is done through the medium of the olfactory nerves. Secondly, seeing; this duty is performed by the optic nerve. Thirdly, hearing, performed by the portia mollis of the seventh pair of nerves. Fourthly, tasting; the lingual nerves are the proper nerves of taste. Fifthly, feeling; this is performed by the nerves in general. The first four senses are under the control of the will, to a certain extent; we need not see, for we can close our eyes, we can stop our ears, and we need not open our mouth in order to taste; there is more difficulty in preventing ourselves from smelling, and in fact we cannot entirely suspend smelling any longer than we can breathing; although air may not pass into the nose externally, yet it will, when we inhale our breath, pass through the posterior opening.

Before proceeding farther with this subject it will be necessary to return to some particular parts of the nervous system. There are certain parts of the body which are not under the control of the will, yet are essential to life. We feel that perpetual pulsation of the heart, as long as life remains, constantly doing its duty. We may be led on to feats of valor, of honor, or fame, yet the same heart warms up the body; our minds may be engaged in

the various pursuits of life, yet the heart beats, the stomach digests, the liver secretes its juice, the kidneys perform their functions, assimilation takes place, and yet all those are beyond our control so long as the body is in health. Is this not an arrangement created for our good, and one that neither chance or any human ingenuity could have instituted. Let us raise our minds above the physical world, and inquire how is this arrangement and action kept up.

All that part of the system that is not under the control of the will is supplied with nerves from the great sympathetic nerve; the par vagum and phrenic nerves are similar to the sympathetic, and terminate on the viscera, which the mind cannot entirely control. Wherever there is a part that is but partially under the control of the will, it is supplied partly from the sympathetic, and partly from other nerves. Thus we see that respiration is to some extent under the control of the will. All that portion that the mind can govern is supplied with nerves from some other source than the sympathetic; we have no control over the action of the heart so long as we do no violence to it; sleeping or waking, it is still performing the duty assigned it by nature. The stomach and intestines are constantly in motion, digesting and assimilating the substances that are thrown into them without any regard to the will. Let us reflect for a moment on the action of the liver, kidneys, &c.; there the mind is not called upon to direct those glands in their various offices, in order that the whole performance of the body shall be carried on correctly in its multifarious changes. In business the mind is called upon to regulate the whole transaction; we go to our rest at night and rise in the morning with all the regulation still in our mind; yet the complicated movement of these organs over which we have no control is constantly performing a duty that life is depending upon, and yet hidden from our minds, and when in health from our view.

Look again at the other set of nerves—those that obey the will entirely—all those that go to the muscles that move the body in its various ways—are nerves that act only when the mind directs. We cannot raise our arm without the mind directs; we must have a mind to walk, to speak, and to move our bodies from place to place or it will not be done. We are accountable for all the acts of the body, the parts of which are not supplied with nerves from the sympathetic; the tongue will not lisp a word without first being directed by the mind, nor can we raise a hand against our neighbor without first being instructed so to do. The natural inquiry must then be, how is this great work performed?

The nerves that are distributed to all parts of the system, whose action depends on the action of the mind, let them arise from where they may, consist of two sets of fibres which arise from two roots and then join together; one of these roots is for sensation, the other for motion, and although joined together in their whole course yet they preserve their separate function, so that in reality they are two nerves lying close to each other, and wrapped up in one sheath, and yet performing two distinct offices; if we cut one of them at the root we destroy sensibility in those parts to which it is distributed, and if we cut the other we not only destroy sensibility but motion also, which is one of the evidences of their distinctive character, although bound together and undistinguishable to the eye. Both nerves so bound together go from their origin to their destination in like manner; if they branch off they take an equal portion of each, and so continue from branch to branch to their termination.

After describing this arrangement, it is easy to see how motion and sensation exist, as it were, in the same nerve. Suppose fire is applied to the hand; by the irritation produced we have an inclination to remove it; the stimulus applied to the hand by means of heat produces an irritation of that part of the nerve that conveys sensibility and produces a shock to the brain

and mind ; the brain, in consequence of the shock, imparts its stimulant to the motary part of the nerve, by which it is transmitted to the muscles that move the hand from the fire that is burning it.

The irritation not only traverses to the brain and returns to the affected part by the motary part of the nerve, but it must be applied to our senses in order to make the work complete; therefore we remove our hand, or the substance that produces the burn or irritation, in order that the accident may not occur again. We see the moth, attracted by the light, buzzing around the blaze of a candle, and returning with burned wings and scorched bodies, as long as they have power to return, until they are finally consumed or destroyed. Had they a mind to which they could apply the irritation, they would never return after feeling the first effects.

It is not always necessary to apply a stimulant to the sensitive part of the nerve, in order that the mind and brain may throw their stimulant down the motary part to create a muscular action, as the motary part can be exerted by the sense of seeing and hearing ; thus if we see an object coming toward us with rapid motion, and it becomes necessary to change our situation in order to evade the threatened danger, the stimulant that is thrown on the optic nerve from the object of our fear, creates a sympathetic impression that is transmitted to the brain when the motary part of the nerve takes the alarm, and excites the muscles to action, and the result is the immediate removal of the body. When the sense of seeing is affected, it acts as the sensitive part of the nerve, for the optic nerve is not a nerve of motion but of sensation.

We have the same effect produced on the *portio mollis* of the seventh pair ; this is the nerve of hearing. We may hear a noise that will cause us to move suddenly from our position, we may hear a cracking noise over our heads and especially if we are in a situation where something is likely to fall, we move without delay, or stopping to investigate the cause of alarm. In this case the *portio mollis* acts as the sensitive portion of the nerve, in the same manner that the optic nerve does in the former case, carrying its impression or sympathy to the brain, which stimulates the motary nerve to act upon the muscles ; and the result is the same as in the former instance, the moving of the body.

By this, it can be seen that the motary part of the nerve can be affected by the immediate application of some of the other senses, besides feeling. We have here stated that by irritating a nerve, that irritation passes to the brain through the medium of the nerves. It is supposed by many that the medium between the extremities of the nerves and the brain, through which the action passes, consists in electricity ; for they say that one part of the system is positively, and the other negatively electrified ; so that when our thoughts are directed to any part of the body, those thoughts excite the positive and negative electricities, and that the nerves are the conducting wires by which this electricity is transmitted. But for my own part, I cannot view it in that way ; if action depends on electricity, the system must be subject to the laws of that imponderable agent. We know that electricity is affected by dry or damp weather, and yet, we would ask, is sensation increased or diminished by the change of atmosphere ? we have reason to think that it is not. I shall leave this point without entering into the many various and ingenious arguments, that the believers in electricity have produced, and proceed to the explanation of the subject as I understand it, and believe to be true.

When we view the human system in all its ramifications, and see the movements of its different organs, and the harmonious action of each, though some of their operations appear to be somewhat hidden from our observation, yet enough can be seen to lead us to exclaim with the inspired author "how fearfully and wonderfully are we made." The great nervous system is supplied

with an imponderable principle, which I am disposed with some others to call the vital principle.

All organized substances have a principle within them that sustains life; in man, this principle exists to the fullest extent, for we not only have this vital principle, but with it, a mind that governs and directs in a great measure the physical system. With this organization we become a living being, and have the principles of life in all its fulness; while some of the organs are destined to perform the duty of circulation, others absorption, others digestion, and so continue through all the phenomena of being. We have planted in us, from the first of our existence, the principle which is here called vitality; which principle I believe exists in the ovum, or seed, although lying dormant for a great length of time; yet when the natural stimulant is applied, vitality is kindled up, and vivification goes on in all the different parts that enter into the phenomena of life. Were it electricity, or any other agency than vitality that kept up this moving machine, vivification and motion would always be present, for electricity pervades all nature at one time, as freely as at another; although subject to modification or exhalation in its action, by the high or low temperature of the atmosphere, and more especially if there is much aqueous vapor surrounding the parts to which it is applied. We see the seed laid in a dry place for a long time, and remaining from day to day without any apparent change taking place; but place it in the earth, its natural stimulant, and in a short time vitality is excited to action, and the seed produces its *fac similit*. This shows that vitality may lay dormant, until its natural stimulant is applied, when it is excited into action. Another point, it is a well known fact, that some animals of the oviparous kind, although sprightly and lively in the summer, in the winter are, as it were, solidly congealed, having no feeling, are as easily broken as a stick, showing no signs of life, although their nervous, vascular and muscular systems remain perfect. Electricity, galvanism, or magnetism, or any other ism that may be adopted, is present and capable of exerting its influence, yet vitality is wanting, and the serpent cannot move. But when warm weather again approaches, vitality receives its natural stimuli, and the snake is as cheerful and lively as though the cold had never affected it. These evidences prove in my opinion that there is a vital principle existing from the ovum, descending even from our first parent; and that we are governed by the laws that regulate vitality.

Every thing on earth was made before man, and every thing had its principle and law, that it should be regulated by; after the Almighty had created all things, he said "Let us make man in our own image, after our likeness, and let him have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over the earth, and over every creeping thing that creepeth upon the earth." We see by this that all law necessary to govern matter was made before man. Every principle that was to govern the earth, and all things therein, except man, was made before him. This being the case, the argument adduced, shows that man is endowed with a principle independent of all other substances; and if we should be governed by any other law than what exists exclusively in ourselves; the result would be death. And again, each particle of organized matter of a different kind, must have its own law, a violation of which must cause death to the part affected, showing that there is and must be a supreme governing principle inherent in our nature, that must and does harmonize the whole. This principle, as we have before said, is called vitality. The human species is more highly organized or vitalized, than any other part of creation; we were created last to rule over all, and consequently man must have a vitality (or has a vitality) peculiar to himself, the law that governs him is, and must be in some degree different from the law that governs other organized matter. This higher degree of organization is the mind, which in my opinion is the connecting link between God and man. "And the Lord God formed man of the

dust of the earth, and breathed into his nostrils the breath of life, and man became a living soul." Vitality or life the Almighty had placed in every living creature before man; therefore this breath of life, which was breathed into his nostrils causing him to become a living soul, must have been something more than mere animal life, it must have been that principle we shall call the mind, and which principle runs through all mankind to this day; so that this vitality in man is distinct from the vitality existing in all things below man. As in the above quotation "a living soul," living, life or vitality, soul, thoughts or mind. If this definition is correct, we see that life or vitality, soul or thought must exist together in the human body, in order that the entire circle may be complete. When the thoughts or soul leaves the body as in dreaming, then all is depending upon vitality, but when vitality or the living portion ceases to exist, then the soul returns to its giver.

If we put our hands on any thing that is disagreeable to the feeling or destructive to the parts, then we excite this vitality that is located in the nerves, and that by irritation or sympathy, is transmitted to the mind, or soul, to be disposed of as it may direct. This makes the mind accountable for the acts of the body. The mind, or soul, may leave the body, as in dreaming or somnambulism, and yet vitality exists: all the functions that are necessary for the economy of life, are preserved, lying passive, as it were, under the control of that Being Who first formed it as the connecting link between matter and Deity. But when vitality ceases to exist with matter, then the two original principles return to their natural element, the living soul, or mind, returns to Him Who gave it, when He breathed into man the breath of life; and the physical system returns to the earth from which it was made. Of the latter fact we have daily evidences that are indisputable. The former requires a belief, yet that belief is based on such conclusive arguments and evidences that we must admit it as fact.

The question has often been put to me by unbelievers in religion, "where is the location of the soul?" The answer is: where the mind is, there is the soul. We know that we have a mind, but anatomical knowledge has never been able to find its location. I think that vitality is proved to exist and is independent of any other agent, however much we may be surrounded by other matter or other principles, yet they have no agency directly in performing the various functions of life. All impressions of external objects are made upon the brain and mind through the medium of the nerves. The nerves are the conductors by which vitality is influenced. When we touch a nerve we disturb vitality; and when we disturb the vital forces at the extremity of a nerve, that vital action is distributed through the whole length of the nerve to the brain; then the mind has the power of distributing the vital forces in the brain, or the *cerebro-spinal axis*, which is transmitted through the motary part of the nerve to the muscles, and then the dictates of the mind are at once obeyed.

The nerves having the power of conducting sensibility or vitality from one part of the system to another, are often made the conducting medium for transmitting a morbid action from one part to another; in some measure at least if not entirely, this is called sympathy. We say that a part or the whole of the system is sympathetically affected; thus if we have a fever or heat in one part, from that, the whole system is more or less affected by the influence the nerves have over the different parts.

There is frequently a fever or great excitement produced in the system by the action of a blister. This can only act through the medium of the nerves. If we have a pain in the head, by applying a blister on the back part of the neck the pain will be removed. The inflammation causing pain creates an irritation of the nerves in the brain, and by applying a blister to the neck, an irritation at that place greater than that on the brain is cre-

ated, which causes a removal of the disease by the impression made on the nerves.

There are many diseases that appear to be located in the nervous system; a person that has been stout, his muscles firm, the circulation free, and all the functions of the system regularly performed, either from a long train of diseases, or other circumstances, becomes weak and flaccid, the firm muscle has lost its power, the energies of the physical system are weak, and their action curtailed for want of their natural stimuli.

The mind was firm and strong and every way as active as the body, but in consequence of all this reverse action the mind, as well as the body, becomes impaired, the physical energies are so much diminished that if the mind directs the body to perform a duty of much magnitude, it refuses for want of strength, and in consequence of this great physical debility the vital forces are increased or are more easily disturbed.

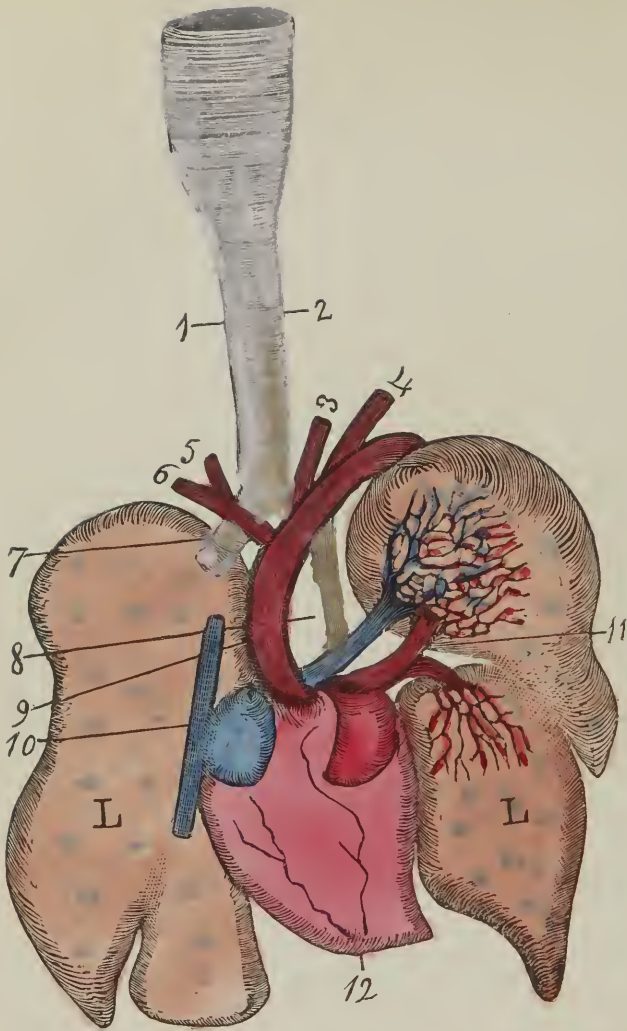
Then, by this increased vital or nervous action and the diminution of the physical system, the natural equilibrium between the two is lost or destroyed. The nervous system is overcharged with duties that the physical system cannot perform. This keeps the nerves in a constant state of irritation, and that irritation destroys the equilibrium that existed while in health between the mind and vitality: so if the equilibrium between the nervous and physical system is disturbed, that must disturb the equilibrium between the mind and vitality. For I contend that there are four systems engaged in this great work of human existence: First, the mind, which exists between God and man; Secondly, vitality, that which exists between the mind and the nervous system, in which it is located; Thirdly, the nervous system, which, in my opinion, is the general location of that imponderable gas that is here called life, or vitality; Fourthly, the whole physical system, except the nerves. I do not wish to define this subtle fluid, called life, as a gaseous substance exactly (but we are sometimes compelled to use words not exactly applicable to express our ideas) for, as has heretofore been said in this article, God breathed the breath of life (vitality) into man's nostrils, and he became a living soul (a living mind.)

If we abuse the laws that govern any one of those four systems, the equilibrium is disturbed, and the result is the diminution of all the forces that sustain life, and even to the destruction of all except the first.

When we speak of a diseased state of the nerves, we do not wish to be understood as meaning that the nerves themselves are really diseased, or that they are emaciated, shrunk up, or wasted away, for that is not the case; when we say a person is weak or emaciated, it is natural for us to suppose that the muscles or fatty parts have diminished, and yet, at the same time, the brain and nervous system have not suffered in the least, as it regards size. I have taken much pains on this point, and find the above assertion to be true.

When we give a medicine that is intended to act on the nerves, it is generally supposed that such medicine strengthens their tone, but that is not really the case, for instead of a tonic to the nerves, there is wanted something to reduce their action, for there is already too high an excitement. The size of the nerve not being diminished, it is, therefore, capable of carrying as much vital action or force as when the whole body was in equipoise, therefore, the nerves demand more of the physical system than it can perform; so that the fault is not in the weak state of the nerves, but really in the physical system, for the nerves are already too highly toned for the low action and debilitated state of the other organs; and medicines that are given to strengthen the nerves, as it is called, act as an anodyne instead of a tonic to them, thereby reducing the vital forces, and giving the general system a chance to rally and recover its equilibrium.

I have no doubt that the time will come when physicians will give up that



The above Plate represents the Heart and Lungs of a Child, removed from the chest and spread apart, in order to show the vessels on the left side.

1. The Œsophagus behind the Trachæ.
 2. The Trachæ.
 3. Left Carotid Artery.
 4. Left Subclavian Artery.
 5. Right Carotid Artery, coming off from the Arteria Innominata.
 6. Right Subclavian Artery, " " " " " "
 7. The Right Bronchial Tube, entering the right Lung.
 8. Ductus Arteriosus, coming off from the Pulmonary Artery, and terminating in the Aorta.
 9. The Great AORTA.
 10. Venæ Cavæ Descendens and Ascendens, Forming the Right Auricle of the Heart.
 11. Left Pulmonary Veins, (red,) going to the Heart and forming the Left Auricle.
 12. The Heart and Coronary Arteries.
- L L. The Lungs.—The third Lobe on the Right, hanging below: the two on the Left side, dissected apart as much as possible.

common and absurd phrase, "that the nerves are weak," or that the nerves want to be restored! except in those cases where there is palsy of some part of the body; in such cases there is a loss of vital force, and that must be re-established before a cure can be effected. In this case there is no power to move the affected part, and yet some persons, and even physicians class both under one head; that is, they say a person is nervous because he is weak, and he is also nervous because he cannot move. They place all the nervous affections under one head, and they must give medicines to strengthen the nerves in both cases.

In paralytic affections, I think there is a loss of vitality; but in other cases the loss is in the general system, and not in the nervous.

It will be seen that *vital action* and *vital power* have been used considerably in this chapter on the nervous system, and I must acknowledge that on this point I am very tenacious, for if we allow any other agent than vitality to be the conducting medium by which the human system is kept in motion, that very moment we reduce man to a mere mechanical machine, that must be governed by the laws that regulate the agent that is applied to it: let it be electricity, magnetism, attraction, or whatever agent in the place of vitality that fancy may suggest.

The word vitality expresses every thing that we want; it means some thing having life, the power of life; in fact, life itself. If we use any other name or power it has within itself no meaning.

I have been tedious in this matter; but the necessity of the case has demanded more room than I first anticipated giving to this subject, although I have striven to condense my ideas as much as possible and yet be understood.

In leaving this matter, I hope those who may read what is here written, before they condemn my views, will take time for reflection, and give each word and idea its due weight. The description of the nerves must, in a general work of this kind be, of necessity, brief. To enter into all their details would occupy more space than could be condensed into this entire volume.

I have laid myself open to criticism; but am willing to abide the discussion of those that criticise for the sake of truth. If a man at the present day sets forth a new doctrine, he is looked upon as a visionary, and of unsound mind; but despite all this, I have dared to give what, in my opinion, is correct, not only in this, but in all other matters treated of in this work, in such a manner that others may have a chance to approve or not, as shall best serve the calm or irritable state of their own nervous system.]

DESCRIPTION OF THE HEART, ARTERIES, VEINS, THE CIRCULATION AND PROPERTIES OF THE BLOOD.

[This sublime subject has attracted the attention of ancient and modern physiological and scientific writers. Many very erroneous opinions have existed among ancient authors, in reference to the action of the heart and the circulation; but at the present day, it is reduced to anatomical and physiological facts. This may, with truth, be called one of the most beautiful and sublime studies in the whole mechanism of the human system. As this subject is, in itself, of sufficient magnitude to claim the attention of my readers, I shall proceed, without any farther prefatory remarks, to illustrate from personal observation.

The annexed cut, representing the heart, blood-vessels, and lungs, as they are connected, was taken from one of my own dissections (the subject was a child, four or five weeks old). These organs are removed, and spread open as much as possible, in order that the parts may be clearly exposed. The

vessels from the heart are here seen to enter the lungs and disappear. This is a correct representation of these important organs, and the connection between them, and will probably give the reader a better idea of their relative situation than any drawing upon this subject heretofore introduced; as the most of them present a very confused appearance.

The heart consists of muscular fibres, which are so arranged that they present a conical form, with its apex below, and its base above. It is placed rather obliquely in the thorax, and its pulsations can be distinctly felt at the left side of the breast bone, near the fourth and fifth ribs. The heart comprises four distinct cavities; two of which are called *auricles*, receiving the contents of the veins (as seen at 10 on the plate), and the other two communicate with the arteries, and are called *ventricles*. The structure of the ventricles is much more firm, and consists of a far greater proportion of muscular fibres than the auricles: they compose the body of the heart (12), while the auricles appear like appendages of the viscus.

The right auricle of the heart (10) presents the appearance of a small sac or pouch attached to the upper part or base of the heart, and originates from the juncture of the *venæ cavæ ascendens*, and the *venæ cavæ descendens*. This sac is capable of holding a considerable quantity of blood.

Between this portion of the heart and the right ventricle, is a passage, called the *auriculo-ventricular*, or an opening from the auricle to the ventricle. This aperture is guarded by three semilunar membranous folds, attached to either side, forming as many valves, and are called the *auricular*, or *tricuspid valves*. These valves are supported by processes of muscular fibre, called *columnæ cornæ*, arising from and within the ventricle, and terminating in a small tendon, called *cordiæ tendinæ*—sometimes vulgarly called the heartstrings.

The right ventricle is composed entirely of muscular fibres, closely compacted, and is much thicker than the auricle, although not so thick as the left ventricle. Its internal surface consists of bundles, or columns of fleshy fibres. From the upper part or base of this ventricle, arises the pulmonary artery, and immediately within the aurifice of the artery, the membrane is formed into three semicircular folds, similar to those situated in the auriculo-ventricular opening, but rather thicker and more firm. They arise from the sides of the artery and stretch across till the three meet together and form what is called the *semilunar*, or *sigmoid valves*. These valves open into the artery: blood will, therefore, pass freely into this vessel, but a retrograde motion would close the valves and prevent its return.

The left auricle is situated on the left side of the basis of the heart. It originates from the junction of the pulmonary veins (11) which are seen in the plate coming from the lungs. This auricle, together with the valves and the orifice communicating with the ventricles, resembles those which have already been described upon the right side, but with this difference, that instead of the valves being composed of three folds, as before stated, these consist of but two, and are called *mitral valves*. This orifice also bears the same name as the corresponding one upon the right side, and the tendonous threads which are connected to the muscular columns, are also attached to these valves, as in the case of the right auricle. These valves admit the passage of blood from the auricle into the ventricle, but completely prevent its return when the ventricle contracts. One of them is so situated that it covers the mouth of the aorta while the blood is flowing into the ventricles, and leaves that orifice open when the auricle contracts, and the passage to the auricle is closed.

The left ventricle is situated posteriorly and to the left of the right ventricle. It is smaller and much thicker and stronger than the one upon the opposite side. At the upper side of this ventricle is situated the mouth of the great aorta, or the commencement of the great circulating medium, which

is furnished with three semilunar valves, after the manner of the pulmonary artery, but much stronger and better developed.

The external surface of the heart is covered by the *pericardium*; and between this membrane and the muscular surface, adipose matter is deposited irregularly in various places.

There are two arteries arising from the aorta, near its mouth, the office of which is for the nourishment and support of the heart and are called the *coronary arteries*.

The *coronary veins*, or veins of the heart, pass between the left auricle and ventricle, and finally discharge themselves into the right auricle, upon the under side, near its union with the ventricle.

Thus I have given in as condensed and, at the same time, in as comprehensive manner as possible, the anatomy of the heart. I will now proceed in describing the arrangement of the arteries arising from the heart and distributing their branches throughout the system; and also of the veins in their return to that great centre of circulation.

The *pulmonary artery* arises from the superior part of the right ventricle of the heart, and is seen a little anterior to the root of the aorta. It is very large at its origin; as it ascends it inclines a little to the left side of the aorta, and soon divides into the right and left pulmonary arteries: the right passes under the arch of the aorta (not appearing in the cut), crosses behind it and the *venæ cava superior* to the right lung; while the left pulmonary artery passes to the left lung, as seen in the cut, perforating the upper lobe. On entering the lungs, these arteries throw off branches to every part of them, and finally terminate in the air cells.

In order to connect the pulmonary circulation, I will proceed immediately to describe the pulmonary veins and their course.

The *pulmonary veins* are four in number, two on each side. They have their origin at the terminating points of the pulmonary arteries, in the air cells of the lungs. On leaving the lungs, they proceed nearly in a transverse direction, and unite behind the aorta, thence to the left auricle of the heart, where they terminate.

The pulmonary artery and the aorta have a communication, in early infancy, through the medium of the ductus arteriosus (8). It arises from the root of the pulmonary artery and continues in the direction of the main trunk until it communicates with the aorta. Through this vessel the circulation is conducted before birth, without entering the lungs; and it seems particularly calculated for the extensive circulation which is carried on at that period. I shall take up this subject again, in describing the fetal circulation.

The *aorta* (9) arises from the superior part of the left ventricle, and rather behind the pulmonary artery. Its first direction is upward and to the right side. It has scarcely assumed this position before its course is changed, and it then proceeds obliquely backward and to the left, forming a large curve or arch. In its course it passes over the bronchial tube on the left side, descends into the thorax behind the lungs, takes a position on the left side of the spine, and continues this course along the spine, sending off its branches to all parts of the system, until it arrives between the fourth and fifth lumbar vertebræ, when it divides into two great branches of equal size, denominated the common, or primitive iliac arteries.

The aorta at its curve, gives off branches to supply the heart, the head, the upper extremities, and part of the thorax.

Of the branches which go off from the aorta, the first are the right and left coronary arteries, already described. Then at the arch the first given off is a large trunk, called

Arteria Innominati, which passes upward about one or two inches and divides into two branches (5 and 6) one of which supplies the right arm, and

is denominated right subclavian, the other proceeds to the right side of the head, and is called the right carotid.

The *right subclavian* passes upward and outward, over the middle portion of the first rib and behind the clavicle, down to the anterior part of the shoulder-joint, and enters the arm-pit; it there assumes the name of axillary artery. In its course it gives off

First, the *vertebral artery*. This arises from the posterior part of the subclavian, passes upward and backward, and enters the canal formed in the transverse processes of the first three cervical vertebræ; it then inclines backward in a groove, and finally passes through the foramen magnum into the cavity of the cranium. It unites with its fellow from the opposite side, near the union of the medulla oblongata with the pons varoli, and forms the great basilican artery, which again divides and finally sends off some small branches that unite with the internal carotid artery, at the point where it comes in contact with the sella turcica, thus forming the arrangement which is called the *circle of Willis*. The subclavian sends off

Second, the *Inferior Thyroid Artery*. This artery comes off from the superior part of the subclavian, a little to the outward of the one last described, passes upward toward the superior part of the trachea; sends off branches to the contiguous parts; innoscules with its fellow from the opposite side, and is lost in the thyroid gland.

Third and fourth branches arising from the subclavian, are two small arteries that are lost in the muscles on the outer and fore part of the neck.

Fifth, *Mammaria Internus* passes down from the lower and anterior part of the subclavian, on the inside of the breast bone, and terminates in the abdominal muscles in branches which unite with those of the epigastric artery. In its course it gives off branches to the muscles on the out side of the chest.

There are also several small twigs sent off from the subclavian, but a description of them is not of sufficient importance to occupy the limited space of this volume.

Axillary Artery. This is a continuation of the subclavian. It takes its name in the axilla, or arm-pit, and gives off

First, *Mammaria Externa*. This artery passes downward and gives off other branches to the muscles on the anterior part of the chest and to the breast.

The axillary artery gives off secondly, the *Scapularis Interna*; thirdly, *Scapularis Externa*; fourthly, *Arteria Circumflexa Hernia*; fifthly, *Circumflexa anterior*, all of which proceed to parts about the shoulder. Within the axilla the arteries are very much entangled with the veins and nerves, and likewise with many small glands. The axillary artery, immediately on leaving the arm-pit, assumes the name of brachial or humeral artery.

The *Brachial Artery* proceeds down upon the inner side of the arm and by the inner edge of the biceps flexor cubiti. In its course from the axilla to the bend of the elbow it gives off

First, the *Humeral Superior*; second, *Profunda Humeri Inferior*, and several small branches, all going to the arm.

The brachial, at or near the elbow, divides into three important branches: 1st, the radial; 2d, the ulnar, and 3d, the interossial; separately described as follows:

Arteria Radialis. This artery takes its position on the forepart of the radius, or the bone towards the thumb; passing down between the supinator radii longus, and the flexor carpi radialis. It is deep-seated above, but at the wrist, is more superficial; and at this portion of the radial artery we feel the pulsation very readily. After passing over the wrist, the main branch takes its course behind and around the thumb, dips into the palm of the hand, and forms the deep-seated palmer arch. In its course it

sends off four or five small branches that are distributed to the muscles of the arm. The next branch given off by the brachial is the

Arteria ulnaris, which arises near or at the elbow, passes deep under several of the muscles, and takes its course to the inside of the arm, then continues down between the flexor sublimis and flexor carpi ulnaris: it passes over the wrist, into the palm of the hand, and begins to form the superficial palmar arch; at this point it sends off small branches to each finger. In its course it gives origin to a number of small branches that go to the muscles of the arm.

Arteria Interossea. This artery is generally given off by the ulnar artery. It takes its course between the bones of the fore-arm, and gives off many small branches to the deep-seated muscles, some passing through the interosseous ligament to the posterior part of the arm; they innosculate with each other and with the branches of the radial and ulnar arteries.

Having described the subclavian artery, and all its principal branches, I will now return to the *arteria innominata*, and call the attention of the reader to the next branch of its branches.

The *Right Carotid* artery (see 5 and 3) ascends from the thorax by the side of the trachea. On its outside it has the internal jugular vein, and is covered partly by the sterno-clido-mastoides; behind it is situated the par vagum, as has already been described in surgery. It gives off no branches until it arrives at a little above the os hyoides, when it bifurcates into the external and internal carotids.

The external carotid immediately begins to send off branches, in the following course. Anteriorly,

First, *Thyroidea Superior*. This artery passes a little downward and inward, and is spread out on the thyroid gland, where it innosculates with the artery from the opposite side, and with the inferior thyroid that comes from the superior artery;

Second, *Lingualis*. This branch is given off near the thyroid, passes over the end of the os hyoides, perforates some of the muscles about the throat, to which it gives twigs, and finally terminates in the substance of the tongue.

Third, *Maxillaris Externa*. Comes off from the last-described artery, and perforates some of the muscles of the throat, buries itself under and sometimes passes through the submaxillary gland. It runs over the lower jaw about half way between the chin and its angle, and terminates about the sides of the face.

Posteriorly the carotid sends off,

Fourthly, *Occipitalis*. This artery passes backward and upward, and terminates on the back part of the head; a small branch uniting with the vertebral artery.

Fifth, *Pharyngea*. This is a small artery given off to the pharynx, or the deep parts of the throat.

The *Posterior Auris*. This small branch passes upward near the ear, and is distributed on the integuments of the scalp.

The carotid passes up behind the angle of the jaw, through the parotid gland, and divides into three conspicuous branches, one of which is the

Maxillaris Externa. This branch passes over the neck of the lower jaw, comes forward toward the angle of the mouth, and there assumes the name of fascial artery. It ascends by the side of the nose, and is finally lost in the inner corner of the eye. This artery is very much contorted in its course.

The extremity of the carotid divides into the anterior, middle, and posterior temporal arteries, which ramify over the side of the head and temple.

The carotid artery, while imbedded in the parotid gland, gives off the maxillaris interiora, and from that is sent off

First, Arteria Media Duræ Matris, which passes through the spinal foramen of the sphenoid bone, and is distributed to the dura mater of the brain.

Second, Maxillary Inferior, passes down and enters the lower jaw, accompanied by a nerve.

The maxillaris internus gives off five or six more branches, that are distributed to the deep-seated and superficial parts of the face, nose and eye.

The Internal Carotid Artery, at its bifurcation from the common carotid, passes a little outward, then dips deep down and enters the brain through a winding foramen in the petrous portion of the temporal bone; this foramen is denominated Foramen Caroticum. After entering the brain, it divides into three principal branches, viz: 1st. Anterior Cerebri, passing between the anterior lobes: 2d, Media Cerebri, entering the fissure of Sylvii: 3d, Ramus Communicans, uniting with the basillar.

To return to the aorta.—The next arteries given off are the Left Carotid (3) and Left Subclavian (4). They have the same distribution as the corresponding arteries of the opposite side, already described, therefore a repetition is unnecessary. I will now take up the branches of the aorta, after it has turned the arch.

The Inferior Intercoastal.—The arteries that supply the three or four superior intercoastal spaces, are given off in one trunk, and afterwards divide. There are eight or nine in number on each side passing into the intervals between the ribs.

Bronchiales Arteriæ are two or three small arteries given off from the aorta to the lungs on each side.

Several small arteries pass forward from the aorta to the œsophagus, denominated Arteria Œsophagæ; others run to the pericardium and pleura.

The aorta passes from the thorax into the abdomen, between the crura of the diaphragm and then gives off

1st. The two Phrenic arteries which ramify over the diaphragm.

2d. The Cœlic Artery is given off in a large trunk, but shortly divides into three considerable branches, denominated

1st. Coronaria Ventriculi, passing to the cardiac, or large end of the stomach.

2d. Arteria Splenica, passing under the curve of the stomach and on the upper edge of the pancreas and finally enters the concave surface of the spleen and distributes itself in this viscus.

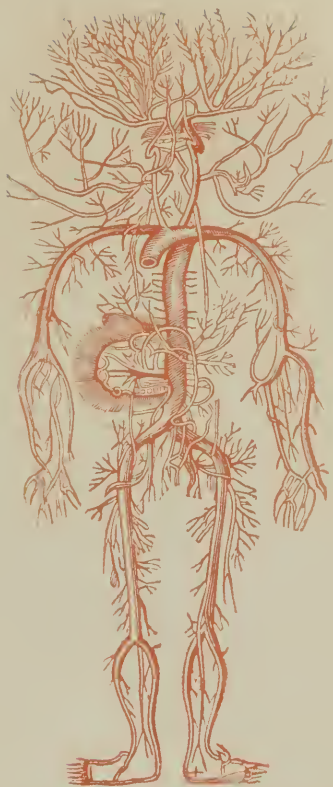
3d. Arteria Hepatica, passing to the liver where it divides into two branches, right and left; these branches enter the liver and terminate. In its course it gives off several small branches to the duodenum and to the lesser curvature of the stomach. The aorta next gives off,

3d. The Superior Mesenteric Artery. This arises in a single trunk of considerable size, and gives off a number of branches, all of which are distributed upon the intestines. This artery and its branches convey a large quantity of blood.

4th. The Emulgent Arteries are also two in number; they arise from the anterior part of the aorta and passes to the kidneys.

5th. The Spermatic Arteries are also two in number; they arise from the anterior part of the aorta, pass down through the abdominal ring to the testicle in males, and in females they supply the ovaria and uterus.

6th. The Inferior Mesenteric arise in a single trunk and divide in three or four branches; the main branch terminates in the lower part of the colon and rectum, and is there called Arteria Hemorrhoidalis Interna.



THE ARTERIAL SYSTEM.

Showing the Aorta from its orifice, together with its branches, and all the arteries with their various ramifications throughout the Human System in their natural colour



THE VEINOUS SYSTEM:

Showing the two *Venæ Cavae*, together with all the veins in the Human System, in their natural colour, returning the blood to the great centre of circulation.

The aorta also gives off several smaller branches from its inferior portion, and then bifurcates into two arteries called, Primitive, or Common Iliac.

The Iliaca Communis passes along the margin of the psoas muscle, and at an inch or two from the origin, divides into the Internal and External Iliac.

The Internal Iliac dips into the pubis and there divides into a number of branches, some of which come out on the back part of the thigh and join others.

The External Iliac follows the direction of the psoas muscle and gives off the Epigastric Artery, which passes up on the inside of the recti muscle and joins the internal mammaria; it also sends off the Circumflex Ili extending around the spine of the ilium. There are many small arteries about the peronei which are principally given off from the internal Iliac; among them, the Sciatic, Pudic, Perineal, Obturator, and Hypogastric. The external iliac passes under Poupart's ligament and becomes the

Femoral Artery. This artery first appears on the fore and upper part of the thigh, passes down upon the inner side of the thigh, and finally winds around under the knee, giving off in its course a large branch, called *arteria profunda*, which again divides into two or three branches.

The femoral, at its upper part, is covered only by the common integuments, but as it proceeds down it is covered by the sartorius muscle, which is a convenient guide in cutting for this artery. On arriving at the bend of the knee it assumes the name of

Arteria Poplitea: it is situated directly between the condyles of the femur, and gives off some small branches to the joint; it then divides into the anterior and posterior tibial arteries.

The *Arteria Tibialis Antica*, being one of the branches of the popliteal, passes down between the tibia and the fibula, perforates the interosseus ligament, and continues its course down on the fore part of the leg, by the side of the *tibialis anticus*, becomes quite superficial at the ankle, and there gives off the *malleolaris interna*, external malleolar, tarsal and metatarsal, and the interossial arteries.

The *Arteria Tibialis Postica* is one of the continued trunks of the popliteal. It passes down under the soleus muscle, behind the inner ankle where the pulsation can be sensibly felt. It divides into two branches which form an arch on the sole of the foot, from whence other branches are sent off to the toes, where they terminate. The posterior tibial artery, in its course, gives off the

Peroneal Artery which passes down on the inside of the fibula and divides into the peroneal anterior and posterior; they are spent upon the muscles of the leg.

Thus ends the description of the principal arteries in the human system.

THE VEINS.

The veins nearly correspond, although they are much more numerous than the arteries. Their names also correspond with the names of the arteries. The veins are supplied with numerous valves, which assist in propelling the blood through them, and they all finally terminate in the ventricles of the heart. The muscular coats of the veins run in a longitudinal direction, which allows great dilatation; whereas in the arteries, they are circular, or nearly so.

By this description of the vessels, the reader will be enabled to understand the course that the blood takes to the circulation, to which I shall now call his attention.

The circulation is of two kinds, in the human species; the single or *fœtal*, and the double or *adult*. I shall describe the adult first: by so doing the reader will be able more readily to understand the *fœtal* or single. In describing the heart, the anatomy of which, together with the engraving, must make it so plain, that we can easily comprehend its anatomical arrangement. We will therefore suppose the blood to be in the right auricle (10) of the heart; when that cavity is filled and distended, it is then stimulated to contraction by the pressure of this amount of blood, in doing which, it pushes down the *tricuspid valve*; in the upper part of the auricle there is, as in the *ventricle*, those *columnæ corneæ* which support and assist in its contraction. When the *tricuspid valves* open, the blood passes down into the right *ventricle*, through the *auriculo-ventricular* opening, the *ventricle* is then stimulated to contraction by the blood, and closes the opening by forcing the blood up against the tricuspid valves, and obliges it to go into the pulmonary artery, instead of regurgitating back into the auricle; but while in the *ventricle* its current is no doubt broken by the *columnæ corneæ*, many of which are situated therein. At the time the *ventricle* contracts, it not only closes the *tricuspid valves*, but also opens the *sigmoid valves* at the root of the pulmonary artery, into which the blood is thrown; the valve then closes, cutting off its retreat and compelling it to pass on into the lungs, and minute extremities of the pulmonary arteries, which terminate in the air cells; or the communication that exists between them and the vessels, so that air comes in contact with the blood as soon as it reaches the lungs. This communication is so small that the blood cannot escape, although it allows of a free admission of air; as through this, the oxygen which is necessary to life passes into the circulation, and the carbon which is detrimental to life passes out and is thrown off; and through this, the hydrogen of the blood passes off. The blood being of a coarser material, is consequently prevented from passing with the gases; as we see in the kidneys, where the water is sifted from the blood. The tubes being finer than the particles, or what is more properly called the globules of blood, will not while in health admit of its passage.

The blood is then taken up by the extreme pulmonary veins, and carried to the left side of the heart, and is there emptied into the left *auricle*, which contracts and throws it through the left *auriculo-ventricular* opening, where it pushes down the *mitral valves* and enters the left *ventricle*, which continuing, throws it into the *aorta*, when the *semilunar valves* prevent it from returning into the ventricle. After the blood has left the *ventricle* and got into the *aorta*, it then passes around the whole circulation or system of arteries before named, and completes the adult or double circulation. I have endeavored to condense it in as small a compass as possible, in order that the reader might not get confused with a multiplicity of words. We will now speak of the

FŒTAL, OR SINGLE CIRCULATION.

The placenta in an impregnated uterus, is attached to the inside and upper part of the uterus by means of vessels, and is a large spongy vascular substance, at which we point we start.

The umbilical veins begin in the placenta and pass on in the umbilical cord, until it reaches the navel or umbilicus; it then gets into the abdomen, and passes to the great fissure of the liver, when it gives off a branch that stops in the liver; the main branch then, which is rather small, continues its course a little above the liver and unites with the descending *vena cava* (see the lower end of 10), and pours its column of blood into the right auricle of the heart. Here it may be necessary to state that there is a passage from the right to the left auricle, called the *foramen ovale*; at birth this *foramen* closes up. On the left side of this foramen, a part or process of the same side of the auricle forms a valve; then when the child breathes, then the blood for

the first time passes into the lungs, and when it returns to the heart, it presses against this valve, and closes up the communication between the right and left auricle and establishes the double or adult circulation. When the right auricle contracts, it throws the blood partly through this foramen into the left auricle and partly into the right ventricle; the part that goes into the left auricle, passes into the left ventricle, so that when the right auricle contracts it in fact throws the blood into both ventricles by means of this foramen ovale. When the heart contracts it throws the blood out into the *aorta* and pulmonary arteries, and that portion in the pulmonary arteries instead of going to the lungs, cuts across through the *ductus arteriosus* (a small duct running from the aorta, to the root of the pulmonary arteries), and joins that portion in the aorta, from whence it goes to all parts of the system. When the blood gets down to the *internal iliacs*, it turns up by the side of the bladder, and passes on upwards until it arrives at the umbilicus, where it passes out wrapped up in the sheath with the vein first described, and terminates in the placenta, where it branches out and is lost.

This is the fetal circulation; it may at first appear to be confused, but as all the difficulty that can arise, must be in the heart, it therefore only becomes necessary to study that well, as here laid down, and the difficulties are surmounted.

As the lungs in the fœtus are entirely passive, and consequently cannot perform the office they do after birth, it becomes necessary for the placenta to a certain extent, to perform their duty. The placenta is also the medium by which the child receives its nourishment, which comes through the circulation of the blood of the mother, which is emptied into the placenta. I shall close this article, by an extract from Hooper's Dictionary, on the properties of the blood; hoping that I have been sufficiently minute to give a clear idea, without being tedious.

PROPERTIES OF BLOOD OR SANGUINE.

Hooper says that blood is "a red homogeneous fluid, of a saltish taste, and somewhat urinous smell, and glutinous consistence, which circulates in the cavities of the heart, arteries, and veins. The quantity is estimated to be about twenty eight pounds in an adult: of this, four parts are contained in the veins, and a fifth in the arteries. The color of the blood is red; in the arteries it is of a florid hue, in the veins darker; except only the pulmonary veins, in which it is of a lighter cast. Physiology demonstrates, that it acquires this florid color in passing through the lungs, and from the oxygen it absorbs. The blood is the most important fluid of our body. Some physicians and anatomists have considered it as alive, and have formed many ingenious hypotheses in support of its vitality. The temperature of this fluid is of considerable importance, and appears to depend upon the circulation and respiration. The blood of man, quadrupeds, and birds, is hotter than the medium they inhabit; hence they are termed animals of warm blood; while in fishes and reptiles, animals with cold blood, it is nearly of the temperature of the medium they inhabit. The microscope discovers that the blood contains a great number of round globules, which are seen floating about in a yellowish fluid, the serum. The blood also possesses remarkable physical properties; its taste is saltish, and the smell of its halitus or vapor, when recently drawn, is somewhat urinous; it is of a plastic consistence, somewhat glutinous and adhesive. Chymical analysis of blood, by means of distillation discovers, 1. a considerable quantity of *insipid water*, which very soon becomes putrid. 2. *Empyreumatic oil*. 3. *Ammoniacal spirit*. 4. *Carbon*, which remains behind, is very spongy, and with great difficulty incinerated. The ashes, however, consist of a small quantity of culinary salt, soda, phosphorated lime, and a very small portion of iron. While hot, and in motion,

the blood remains constantly fluid, and red, when it cools, and is at rest, it takes the form of a fluid mass, which gradually and spontaneously separates into two parts; the one, which is red, and floating becomes of a darker color, remains concrete, and is called the *cruur*, *crassamentum*, or *cake*; the other, which occupies the lower part of the vessel, is of a yellow greenish color, and adhesive, and is called the *serum* or *lymph*.

The *cruur* forms more than one half of the blood; it is very plastic, thick, and, in consistence, like glutinous jelly. It soon petrifies in the temperature of the air; but, dried by a gentle heat, becomes a brittle, dark, red mass. It is insoluble in water; and, when boiled in it, is converted into a hard grumous mass, internally red. The surface of the *cruur* of the blood, after being exposed in a vessel to atmospheric air, becomes of a florid red color; but the inferior surface, contiguous to the vessel, is of a deep black: the change of color on the surface is owing to the oxygen of the atmosphere uniting with the blood. The *bruur* of the blood is composed of, 1. *Red globules*, which chymistry demonstrates consist of a fibrous gluten and oxydated iron. The experiments of the celebrated Rhades, shew, that in twenty five pounds of blood from the human body, near two drachms of the oxyd of iron were obtained. 2. The fibrous gluten of the *cruur*, which remains after washing the *cruur* of blood for a considerable time in cold water, and enclosed in a fine linen cloth; in which case the red globules are washed away. If the red water obtained in this experiment be evaporated, and then distilled to dryness, it leaves behind a carbon, exhibiting, when incinerated, a great quantity of iron, attractable by the magnet. From these experiments it would appear, that the redness of the globules is imparted from the oxidated iron, for which purpose a small quantity is sufficient.

The serum of the blood is a lymphatic fluid, almost inodorous; rather saltish to the taste; pellucid, and of a yellowish green color; and rather of a plastic consistence. It forms scarcely one half of the blood; and it contains, 1. A large portion of *water*; from forty-seven ounces of serum, forty-three of insipid water were yielded by distillation. 2. *Albuminous gluten*, like the white of an egg, obtained by boiling, or by stirring it with a stick, or by an admixture of alcohol or concentrated mineral acid. 3. *Jelly*. If equal parts of water and serum of the blood be coagulated by fire, that part of the serum which is not coagulated, upon being cooled, puts on the appearance of a tremulous jelly. 4. *Carbonated soda*, obtained by pouring a mineral acid upon recent diluted serum. 5. *Culinary salt*, found in the incinerated carbon of blood. The albuminous principle of the serum, more commonly called the coagulable lymph, appears to be of very considerable importance in the animal economy, both in diseased and healthy states of it: it affords, by analysis, carbon, azot, and hydrogen. The importance of the blood is very considerable; it distends the cavities of the heart and blood-vessels, and prevents them from collapsing; it stimulates to contraction the cavities of the heart and vessels, by which means the circulation of the blood is performed; it generates within itself animal heat, which it propagates throughout the body; it nourishes the whole body; and lastly, it is that source from which every secretion of the body is separated."

QUALITIES OF THE BLOOD.

Bell gives a beautiful description, when he says "blood is a fluid of a rich and beautiful color; it is vermilion-colored in the arteries, strong purple in the veins, and black, or almost so, at the right side of the heart: it feels thick and unctuous betwixt the fingers, is of a slightly saline taste, is various in various parts of the body, in the heart or at the centre of the circulation different from what it is in the glands, excretories, and all the extremities of the body; different in the liver, among the intestines, in the cheeks, and lips, in

the reservoir or sinuses of the head of the womb. In various individuals, but much more in different animals, it varies with their functions and manner of life: it is more or less perfect in animals, in birds, in fishes, in insects; it is thick or thin; has gross particles or small; is red or pale; hot or cold; according to the creature's; and from this last variety, viz: of the manner of life, come our division of animals into those of hot and cold blood.

It is by the most simple and natural methods that we examine the blood; since almost spontaneously it resolves itself into three parts; the CRASSAMENTUM, the SERUM, and the RED GLOBULES; for in a cup of blood the crassamentum, or clot, the *hepar sanguinerum*, as it was called long ago, floats in the serum; the red globules are engaged in this clot, and give it color; the serum may be poured off, the coagulum may be washed till it is freed of the red parts of the blood; and then the red particles are found in the water with which the coagulum was washed, and the coagulum remains upon the strainer, little reduced in size, pure and white, the gluten or fibrous part of the blood. Or we may separate this part by a method which Ruysch first taught us; we may, while the blood is congealing, stir it with a bunch of rods, when the pure and colorless gluten gathers upon the rods and the serum, with the red particles suspended in it, remain behind.

RESPIRATION.

Under this head we shall show and describe the apparatus necessary for the performance of this vital function. As respiration is very closely connected with the circulation, which may be seen by a reference to the engraving showing the lungs, heart, and blood vessels, and a part of the respiratory organs, it will be necessary to refer to it while describing the several parts. We will first describe the apparatus through which the air passes, called the trachea (2), bronchial tubes (7 going into the right lung), and lungs.

The trachea, or windpipe, reaches from the upper part of the neck; beginning at the thyroid cartilage, and extending down on the fore part of the neck to the breast bone. It there divides into two portions called bronchia. The upper part of the trachea is formed by four cartilages, one thyroid, two cricoid, and one aratinoid; these form a kind of box which causes the projection on the anterior part of the neck, just behind the chin. All the anterior and lateral portions of the trachea are principally formed of cartilaginous rings, that run about two thirds of the way around; this keeps the tube constantly open, so that the air can pass freely in and out at the same time, and enables us to modulate the voice. The same structure exists at the point where the trachea divides, and from whence it finally passes into the lungs, and through all their ramifications, preserving the same marks of identity. These tubes terminate in little bulbs, called air cells, which form a great portion of the bulk of the lungs.

The lungs themselves are situated in, and fill up nearly all the cavity called the thorax. When the lungs are removed from the thorax, or chest, they can be inflated by blowing into the trachea to a considerable larger size than the cavity they belong in.

The lungs in infancy are of a reddish cast; in middle age they are bluish, while in old age they are nearly black. They are connected to the heart by means of the pulmonary vessels.

The next portion of the respiratory organs which will come under our attention will be the Diaphragm. The muscles between the ribs, and those attached to some part of the outside of the chest are called the external respiratory muscles.

The Diaphragm is a broad flat muscle, arising from the spine and is attached to the ribs, dividing the thorax from the abdomen, the lower surface

of which is concave and the upper convex ; the latter being constantly raised into the thorax so that, when stimulated to action, it draws down and creates a vacuum in the lungs, to fill which the air immediately rushes in. In taking a long breath, we not only enlarge the chest, but increase the diameter of the abdomen by the descent of the diaphragm into it ; when the diaphragm rises, the abdomen diminishes or recedes ; this, if no other reason could be adduced, shows the necessity of giving the diaphragm plenty of room to act, in order that we may respire with ease and thus prevent many diseases.

The Phrenic Nerve is formed by branches of the third and fourth cervical nerves, and passes down the neck into the thorax between the subclavian artery and vein, running over the root of the lungs, and on the side of the heart or pericardium, reaches the diaphragm, supplying it freely with nerves. This is one of the great respiratory nerves that assists, in addition to the air in the lungs, the contraction and expansion of the diaphragm.

The next organs that we shall call attention to, are the muscles attached to some part of the thorax.

The great pectoral muscles which arise from the thorax and are inserted in the arm, a little below the shoulder, and form some of the great external respiratory muscles that draw out the chest by their contraction, thereby enlarging the thoracic cavity, and assist the diaphragm in forcing a greater amount of air into the lungs.

The muscles that arise from the upper part of the chest and are inserted into the neck also assist in enlarging the chest by drawing it up ; there is a prevalent opinion, promulgated too by men who stand high in the estimation of the public, that the muscles of the loins and abdomen are the principal muscles of respiration ; but what arguments are adduced to sustain such an opinion I am unable to say. These may assist, to a certain extent, in the performance of this function ; but to believe that they are the principal muscles engaged therein, requires a degree of credence that I have not been able to discover.

A certain Lecturer on elocution says, "that he talks and breathes, and that the action or effort made to speak or breathe is produced by the action of the abdominal muscles, and in order to speak or breathe rightly these muscles must perform the office of speaking and breathing;" yet in his whole course of lectures, he did not communicate to his hearers how it was done, how he possessed, or how they were to obtain this extraordinary art. He again says, "you must speak from the abdomen, and not from the thorax !" I would like to ask this learned lecturer how long he would breathe or speak if there were a hole through his diaphragm ? His new theory would soon crumble to nothing, and as the doctrine, in my opinion, is absurd and groundless, it would be useless to discuss the matter any farther.

The thorax that contains the lungs, is formed and kept in one position by a bony wall, composed of the spine, ribs, and sternum, which structure is the fixed point for all muscular action that assists in respiration. This wall, although firm, allows of considerable motion, by reason of a small portion of the anterior part of the ribs which form it being cartilaginous, and allows it to play, or expand, with the motion of the lungs ; and motion, though small, is also allowed where they join the spine.

Respiration is kept up by the constant contraction and expansion of the chest and lungs : when they cease to act, respiration, of course, stops. When the diaphragm descends, and the chest enlarges by the action of the muscles on the external parts, the air rushes in and the vacuum which would otherwise occur, is filled ; and as the air enters with considerable force, it goes to the minute bronchial tubes, or air cells, but as the chest collapses, the air begins to pass out and so continues till the chest again expands ; but the air which is passed out from the lungs, is quite different from that which passes

into them. If the atmosphere is pure when it is inhaled, it will consist, by measure, of seventy-three parts of nitrogen and twenty-seven of oxygen; there usually is, however, a small quantity of carbonic acid gas contained in the atmosphere. When the breath passes off, it has diminished in bulk and changed its character; the greatest change is the absorption of the oxygen and the increase in the amount of carbonic acid. The oxygen passes into the blood, and the carbon engendered in the system is mostly thrown off by means of the lungs.

As there is a great amount of air received and expelled in a given time, there must be an adequate surface for that to spread on, and the larger the surface the greater will be the amount of friction produced on the nerves, and the greater will be the heat in the system or lungs; by irritating a nerve or any set of nerves, an increased action is produced in that part: the rapid rushing of air into and out of the lungs produces an irritation which results in the generation of animal heat; yet this irritation is not like that caused by a foreign body coming in contact with any part of vitalized matter.

If the finger is rubbed briskly against any hard substance, there will be a heat produced, but following that heat will be inflammation and sometimes death of the parts so irritated; but as the atmospheric air is homogeneous with our life, without which we could not exist, therefore, the irritation produced by its passing rapidly through the lungs and giving off, its oxygen is as essential to life as is the general circulation of the blood.

I do not wish it to be understood that I am so much of a vitalist as to believe that the whole phenomena of life are kept up by the nervous influence exclusively, for in those persons in whom the nervous irritability predominates, we always see the smallest amount of animal heat, as the nervous temperament invariably shows a pale countenance, narrow contracted chest, soft muscles, the whole body weak and the health delicate.

It is reasonable to suppose that the changes which take place in the lungs, increases the heat of the system, for it is a fact that where we see a person with large lungs in proportion to his body, there will be an increased action; the countenance will be florid, the health good, and every movement of the body and mind will be vivid. The lungs being large, giving surface for the air to spread on, and allowing the oxygen to be rapidly absorbed, sends the blood quickly through the whole course of its circulation until its return to the lungs to be renewed; therefore the heat that is kept up in the system depends, in a great measure, on the amount of, and the rapidity with which oxygen is received.

So far as the irritation is produced by the atmosphere rushing into the lungs, and all the minute ramifications of the bronchial tubes, which irritation is homogenous with the economy of life, and those results produced by it depend upon the nervous influence.

In order that respiration may be successfully carried on, there must be a mutual and harmonious action between the chemical changes that take place in the lungs, and the vital actions produced by the influence of the nervous system, for respiration will diminish in the same ratio as either of these two mediums. If we were to go on a very high mountain, or from a dense to a rare atmosphere, the difficulty in breathing would increase in the same proportion as we ascend, and finally we must return, or respiration would be suspended, for the air in such places is nearly deprived of oxygen, and the blood cannot be oxygenized. In panting, the diaphragm and lungs lose their nervous irritation, and the consequence is a suspension of respiration for a longer or shorter period.

I shall leave the subject of animal heat that has occupied the attention of the earliest writers down to the present day, and it is quite amusing to see with what ingenuity each has tried to establish his own views. I have ex-

pressed my mind in a few words, and will leave the subject for more able physiologists to discuss.

Respiration is partly under the control of the will, and partly without; by an effort on our part, we can suspend respiration for a short time, then by an action that we cannot resist, the parts are called again into play, and respiration is re-established. This temporary suspension is produced by an effort on the part of the will; the sensibility on the part of the nerves is lessened by the influence that the mind has over the physical system; we can exercise the mind in such a way as to suspend the action of the apparatus that is engaged in performing the functions of respiration; and it is reasonable to think that if respiration was wholly depending on the nervous sensibility, then, by the influence the mind has over the action of the nervous system, and through that to the muscles, that we could command ourselves to breathe or not at will, but as there is an accumulation of substances that are necessary to be expelled from the body in order that life may be sustained, and the want of oxygen to assist in revitalizing the circulation; by these accumulations in the fluids, they cause a great amount of stimulus to be thrown on the motary nerves, and that stimulus overcomes the force that the mind has over the respiratory organs, and in spite of all our efforts to the contrary, we are obliged to breathe. We may try to resist but cannot, and when we have taken one or two breaths, the lungs have thrown off the substances, and oxygen is inhaled; then we can suspend for a short time again, and so repeat. If we have to suspend for a great while, the lungs would be obliged to return venous blood to the left side of the heart, which would soon produce death, as it would be poison to the arterial circulation.

In suspended animation by drowning or hanging, in order to resuscitate, we must expand and contract the chest; in this way there is an artificial respiration formed, and by pursuing this course, some persons have been brought from a state of apparent death. I once heard a story related by a professional gentleman whose word I could not doubt; he stated that he had been called to see a person who had hung himself, and all who had seen him supposed that he was dead: but he was determined to try what he could do: he laid the man on his back and stood astride him, took a fair hold of his chest, but before doing that he opened the jugular vein, but no blood ran out; then he began to raise and depress the chest, no signs of life present. He persevered in this way for about twenty minutes; he then saw a little blood ooze out of the vein that he had opened; this gave him hope, and he renewed his exertions, and soon after the man gaped, and in a few minutes after breathed and finally recovered, although he was not in his right mind for some weeks. This statement is only made to show what can be done, and what perseverance will sometimes do; it becomes necessary to use some means of this kind in order to save some children when first born.

When there are many persons crowded together in a close room, and no ventilation through which pure air can pass in and foul air pass out; in such cases the oxygen that is in the air, in this tight room, is soon absorbed, and the carbon that is thrown off makes such air very impure; this is the cause why some persons faint so easily in large assemblies; the oxygen cannot get to the lungs in sufficient quantity to revitalize the blood, therefore, the lungs becomes closed up with an accumulation of carbon. It becomes necessary that we should be acquainted with the quality of the atmosphere we are breathing in order to preserve our health. It is very unhealthy to live, but more especially to sleep below the surface of the earth, for hydrogen in such places is greatly increased; therefore it makes such places damp and unhealthy.

If from any cause the lungs are cramped, so that they cannot perform their duty well, the ability on the part of nature to supply the system with healthy blood is diminished. Whenever we interrupt the natural process of nature

we are entailing disease upon ourselves and frequently upon our posterity, which is the frequent cause of our ill health, or the final cause of our death. The laws that regulate life, are daily broken, and yet no notice is taken of it, although it might be the cause of our death or even of our neighbors, and yet it is set down as among the accidents of the day; but on the other hand if we were to violate one of the laws of the land, we would be arraigned before a tribunal to answer for the offence, and yet the latter deed is trifling compared to the former.

It was my intention when I began this article, to have closed it with the different kinds of exercise that should be pursued in order that we can preserve and continue the health of ourselves and our children; but I have thought best to make a short and separate article of that subject.]

EXERCISE OF THE LUNGS AND CHEST.

It is as necessary to exercise the lungs and chest as any other part of the body, in order that they may be healthy; although the lungs are in constant motion, never ceasing in their exertions to perform the duties that nature requires of them, yet with all this kindness and attention on their part to perform these duties, we often cripple them in their effort, and by crippling them the whole body must suffer, in the same proportion as they do. Without this important organ, as we are constituted, life would be extinct in the same rate as this organ is diseased; in the same proportion we are tending down towards our mother earth; there are thousands of bright and intelligent young persons cut off in the morning of their days, however bright their prospects may be, or however fond their parents might be of them, and all produced from violations of some of the simple laws that regulate and govern life. The question may be asked, what are the laws of life? I answer, they are in a great measure the principles that are laid down in this short work on physiology, all that relates to the mode by which we live, and the way that we should conduct ourselves for the promotion of our comfort and happiness, as the simple cause of life, and to violate the laws that govern material bodies must terminate in death. Not only does this affect ourselves, but it is transmitted to posterity; we entail on them diseases that bring them to a premature grave, in consequence of the parents' neglect or want of attention.

It is not necessary for me to advise as regards clothing, in this place, for I hope that justice has been done to it under that head. Parents and guardians should indulge the children under their charge to exercise in the open air as much as possible, not confine them in a nursery, as some do, shutting them out from the light and air, in order to make them look white and clean. Those nurseries that are conducted in our cities, especially by unskilful persons, are some of the greatest manufactories for disease that human invention can devise. Let a child have the fresh air, let it have the ground in good weather to play on; this excites the lungs to receive oxygen, makes the circulation free, and the muscles strong; the countenance will be fresh and ruddy, instead of pale, and looking as if it had been bleached for beauty's sake. Children that live in large cities should be indulged as often as possible to take a ride or a walk out of the city; girls that are growing up should be taught to jump the rope, and even allowed to roll the hoop; this has of late years become the fashion in our city to a considerable extent; it should be more encouraged in all places where young females are obliged to be housed up in a close apartment; many a beautiful and prosperous young lady is confined all day in school, her mind poring over that which is to make out her future destiny—she returns to her room at night, and is there

confined to the same mental energies until she goes into her studies again, or otherwise she must be trimmed up to meet some company where the other sex forms a part; this keeps the mind still on a strain; it would be much better if it was among her equals, where all restraint could be thrown off, and thereby relax the mind; for all this cramps the chest, makes the muscles weak and flaccid, and lays the foundation for a delicate constitution.

There is another machine for human destruction, and yet located in places where we ought to look for better examples: I allude to many *SCHOOLS* and places of education. The teacher is no more to blame than the parents themselves; they want their children to get an education in a short time, so that they can be of use either to themselves or their avaricious parents. In order to accomplish this, a child must be fastened down to his book and seat for the greater portion of his time, bent over his desk, cramped in his chest, no exercise for his muscles, and finally he begins to be round shouldered, his chest falls in, there is a constant pressure on his lungs, which is a common cause of consumption, his head is stored with all that makes a brilliant mind; but if he has engendered a disease that will soon put an end to all his anticipated career, if it does not terminate in an early death it has produced a weak and debilitated constitution, with not force enough to carry out the workings of the mind. Every school should adopt some plan that should give the scholar a wholesome exercise, which I shall endeavor to point out. In the first place have the desk that is set before them, high enough, so that the scholar will not have to lean much in order to read or perform any of his duties; this prevents pressure on the breast and lungs. There should be high desks that they may be obliged to stand up straight to write or perform other duties; this gives the whole body an erect position, and strengthens the muscles, and likewise prevents the soft substances between the vertebrae from becoming unnaturally thin, and allows the body to bend forwards. It should be one part of the teacher's duty to exercise the scholars for a few minutes, once or twice a day, by allowing them to stand up and gently strike the palms of their hands before and behind them; this expands the chest and gives the lungs room to expand also. There should be some sort of gymnastic exercise established in every school, and that superintended by some person in order that every one should perform it regular, and no one allowed to take the advantage of others. I will here recommend a plan for this form of exercise, which has done more good than nearly all the plans and forms of exercise put together, and it has restored many delicate constitutions that were thought to be beyond the reach of cure. The plan is this: let every proprietor of a school furnish as many heavy wooden guns as he has male scholars, form them into companies, make them stand up straight, throw their shoulders back, and hold up their heads, which is, as all can see, the important part in order to take the pressure off the chest and lungs. Let this be done at first by persons that are used to military tactics, in order that it shall be done right: let all the handling be in strict accordance with military regulations; it gives to them a quick and firm exercise of the arm and chest, it makes the step lofty and commanding, and in fact all his movements in society will be commanding. This can be easily done in a few minutes each day; the scholars and reasonable parents or guardians would prefer this instead of such long spells between the morning and evening sessions. This not only ensures a good constitution, but relaxes the overburdened mind for a short time, and would have a tendency to instil into the minds of the young, ambition, and love to the teacher, and do away with that unmanly and undignified thing called a whip, which has put more devils in than it ever can put out, in a moral community. I have no doubt but this plan at first will be looked upon as ridiculous, or speculative, but the mortality among the young is increasing, which plainly points out

that something must be done. This is a serious question, and it is evident and reasonable that to remedy an evil we must begin at the cause; this I consider is one of the greatest causes, and I trust the time will soon come when a part of our studies in school will be to establish not only the intellectual and educated mind, but with it the physical system; the former cannot exist in full without the energies of the latter.

The female department can be conducted on a plan something like the above. Put them in some erect attitude, and let them walk about for a short time; in the place of a gun let them jump the rope, roll the hoop, &c.

Another way to exercise the lungs, is for a person to go out in the open air and speak a short piece, and speak it as slow and loud as he possibly can; give the lungs time to recover between each word; he had better begin rather low at first, and then increase until he gets as loud as he can, and speak distinct, but not go beyond that, for if you do, you will strain the lungs.

Persons of a narrow chest should take particular care, while walking or sitting, to draw the shoulders back; this keeps them from stooping, and pressing the chest on the lungs, and in fact whatever keeps the body erect, and a good and free exercise of the muscles about the chest, accomplishes in a great measure what has been here recommended. These are a few simple hints, and others may take them up and improve them. To adopt these or similar rules can do no harm, to neglect them may entail on you or your children a disease that cannot be cured.

THE PROCESS OF DIGESTION AND NUTRITION.

Digestion is the regular process by which all substances are converted from a coarse to a fine or soft material, ready to be acted upon by the absorbents.

Nutrition is the completion of the assimilated aliment. In order that the reader can more fully understand this important branch of physiology, it will be necessary to give a general description of the organs that are engaged in digestion. The first is the teeth, which are divided into two common divisions—incisors or cutting teeth (the front teeth), and the molars or grinders (double teeth); the first set bite off the food in suitable proportions, to be broken down by the grinders, under which it is thrown by the tongue, and then mashed or ground into minute particles; while it is undergoing the grinding process there is a great quantity of saliva poured in with it, and while it is softened with this saliva the teeth forms it into a pulp, before we swallow the mass. This saliva comes from three sets of glands principally; the first is situated under the tongue, and called the *sublingual gland*; second, the *submaxillary*, situated under the lower jaw, about half way between the angle and the chin; this secretes a considerable saliva; the third is the *parotid*; this is a very large gland situated behind the angle of the lower jaw; this gland has a large duct arising from it, which passes over the jaw above the angle; it likewise passes over the masseter muscle, then dips down and perforates the buccinator and the lining membrane of the mouth, when its opening can be plainly seen about half way between the upper and lower jaw. The food, after being well masticated and moistened with saliva, passes backwards into the pharynx, through the œsophagus, and then into the stomach; this process of swallowing is all done by the action of the muscles. The upper part of the œsophagus is a large muscular bag called the pharynx. The tongue and the muscles about the cheek and throat crowd the food down into this muscular bag, and then it is propelled, partly by its own gravity and partly by muscular action, into the stomach.

The contents of the stomach is generally in one lump or mass, and in this

way it is more easy for the gastric juice to exert its regular influence upon the substance that is to be digested. The stomach is divided into its *cardiac* (or the end towards the heart), and the *pylorus* extremities. The cardiac end is much the largest; it has a large and small curvature, the small one being upwards, and the large one downwards. The stomach has three proper coats; the external is the serous, the internal the mucous, and the middle is a muscular coat; there are some circular and oblique muscular fibres; by the different course of the muscular fibres the stomach is able to contract or expand; at the same time it gives the vermicular motion that is so essential to digestion, and to propel the food along out of the stomach into the intestines. After the food in this pulpy mass is gathered up in one ball, or nearly so, the gastric juice that is secreted by the stomach spreads over the pulp and dissolves it, one layer after another, until it is all brought down into a soft pap called chyme.

There are certain things necessary to effect a healthy digestion of the food. First, a certain degree of heat of the stomach; secondly, a free mixture of saliva with the food in the mouth; thirdly, a certain quantity of healthy gastric juice in the stomach, and fourthly, the natural peristaltic motion of the stomach and intestines. After the food is melted down into chyme, it passes out of the stomach through the pylorus or small end of the stomach, into the duodenum; this part, by some, is called the second stomach; it is a large swelling out of the upper part of the small intestines. At this point the mucous membrane begins to throw itself into large folds that look like rings, passing around the internal surface of the intestines; those folds are called valvular conniventia; at this point the absorbent vessels open their mouths to take up the nutriment which is to be conveyed to the circulation.

When the chyme is in the duodenum it there comes in contact with a fluid called bile; this bile is secreted by the gall bladder, and then unites with the juices coming from the liver and pancreas, each one having a duct, and those three run together and form one common duct called ductus communis cholodachus; this duct enters into the duodenum, about four inches below the stomach; the office of this duct is to empty the juices that comes from the liver, gall-bladder, and pancreas, into the duodenum, for the purpose of assisting in digestion.

The next portion of intestines that the food passes through, is called the jejunum; this is the beginning of the true small intestines.

The next portion which the food passes through is called the ilium; this is the lower part of the small intestines; the ilium terminates in the cæcum, the beginning of the large intestines; the lower end of the ilium opens into the cæcum in such a way as to form a valve; this valve prevents any substances injected by the way of the rectum from passing any further up, and at this point there comes off a worm-like process called the appendiculæ cecæ vermiciformis; the office of this appears to be to secrete and throw off with the feces that fœtid smell when the excrements pass from the rectum. The cæcum is the beginning of the large intestines, or colon; this part starts from the right side, and ascends up as high as the stomach, and lays against the liver; this is called the ascending colon; it then passes off to the left side; in its course it is very nigh the stomach; this part is called the transverse colon; it then descends on the left side, and is called the descending colon, and then terminates into the rectum and anus. There are no important alterations in the structure of the small intestines; they are coiled around each other; the substance that is contained within them is propelled by the peristaltic motion here as well as in the stomach; the valvulæ conniventes continues as close together, but when they extend into the colon they are further apart, for there is but little use for them, as nearly all the nutriment is taken up by the absorbents before the substances reach the

colon; the colon performs but little more office than to receive the substance that is only fit to be passed off.

After thus giving a short description of the digestive canal, the parts through which food passes, and the substances that comes in contact, it only requires to complete this subject, to give the apparatus through which chyle passes, and the way nutrition is effected. Chyle is the milky part of chyme. In the first place, in the stomach after the gastric juice has melted down the pulp, it is then called (as I have before stated), chyme; this chyme then undergoes a separation in the intestines, and the milky part is chyle; this last is pure, and is ready to be taken up by the absorbents and carried to the blood to supply the waste of the system. The constituent principles of chyme, are, first, water, which forms its greater part; second, oily cream, which chemistry teaches to be hydrogen and carbon; third, cheese, which is formed by the carbon, and azote of the indigested food; fourth, earth is occasionally found; fifth, animal lymph, which is mixed with the gastric juice.

Here I will give a short description in order that the reader may have a clear idea how this important office is performed. In the first place, we have those folds of the internal coats of the intestines, and at that point there are many little vessels or ducts, with the ends opening into the internal surface of the intestines; they are so fine that blood could not pass through them; the chyle is thinner than blood; those little ducts are called absorbents; they suck up this milky substance, called chyle, when those absorbent vessels get on the outside of the intestines, they begin to run together, and finally perhaps thousands of those fine ducts terminate in one common duct, called the thoracic duct; those small lacteal or absorbent ducts are conducted through the mesentery until they reach the common duct near the spine below the diaphragm. The thoracic duct passes into the thorax beside the aorta, keeping near the spine, until it reaches the arch of the aorta, and near the juncture of the collar bone and sternum; it then empties its contents into the angle formed by the left internal jugular, and subclavian vein; it then passes down with the blood into the vena cava superior, and thence into the right auricle of the heart, and then with the blood is distributed to all parts of the system. The thoracic duct in its course receives the absorbents from all parts of the body: even those absorbents of the rete mucosum dip down and pass through the larger or smaller glands, and so running from one point to another, until they reach the great thoracic duct; those small lymphatic vessels, as well as the thoracic duct, take a serpentine course to reach the point of destination; those ducts are all white, and look like the cellular tissue, and are very difficult to find by an inexperienced hand. The thoracic duct is only about the size of a crow quill, yet the pabulum of life that forms the base of the whole fabric of man passes through it, and by stopping this small passage, man must shortly wither and die.

The stomach and intestines are supplied freely with blood vessels, for they are the principal organs of digestion. There has been various opinions as to the exact manner or way digestion is carried on in the stomach and intestines; some think it is completely a chemical action, depending on no other agent but chemistry; some think it is entirely a putrefactive course, others think that it is depending entirely on the nervous system; but the fact I conceive to be this, that digestion depends partly on the action of one substance with another, or in other words the food is chemically affected; but in addition to this, much or more depends on the vitality of the system for digestion than from all the other causes put together. The process of digestion could not be carried on as it is in any other place than in the living body, and that must be in the digestive apparatus; take it from thence and all the other powers cannot produce digestion without vitality, and the va-

rious functions of the system must cease, for that is the great mainspring to the mechanism of the system.

In order to have digestion carried on freely and easily, it is necessary to have all solid food masticated well before it enters into the stomach, and at the same time not to overload the stomach with food, and especially if hard to digest; many diseases are produced in this way that it is hard to remove; some persons are in the habit of eating hearty suppers before going to bed; by making this a continued practice there will be an increased call for gastric juice, and at the same time an increased energy of the stomach; finally their action will be impaired, and a long train of diseases set in that often proves fatal; watchfulness, aberration of the mind, and unpleasant dreams, are the frequent results of an overloaded stomach, of indigestible substances. From what has been said, the reader can easily understand the organs that enter into, and the process of digestion. Volumes might be written on this subject, but I shall conclude by giving a short recapitulation.

First, the food is bitten off by the front teeth, by the tongue it is thrown under the grinders, and there masticated to fine particles, and at the same time it is mixed with saliva and formed into a pulp or soft mass; then it passes into the stomach, and the gastric juice then comes in contact with this pulpy mass, and melts it down into a thin matter called chyme; it is then, by the muscular motion of the stomach passed into the duodenum, and then comes in contact with the bile; by the action of the intestines chyle is separated from the chyme. The chyle is the real nutriment, and looks like milk, and is by the absorbents taken up and carried through the thoracic duct, and finally emptied into the left subclavian vein; the remaining portion of the chyme is passed out of the system as excrements.

THE MODUS OPERANDI OF MEDICINES.

[This subject has occupied the attention of ancient and modern writers, and some of them have not failed to enter into the most fanatical ideas, not even based on the slightest probability of truth. Some even at this day suppose that all medicines, in order to have their remedial influence on the system must enter into the circulation and through it produce their remedial effect.

Others try to make the world believe that all the action of medicines depends upon the nervous impression.

The first class are called the Humoralists, and latter Vitalists.

I think it unnecessary to enter into an argument on the two great principles, as they are called, but shall give my own views, believing them to be based, at least, on common sense. To a certain extent, both of the above theories are correct. In my opinion there are medicines that enter into the blood, and produce a healing influence in that way. That class of medicines that is capable of assimilating, or to a certain extent, is homogeneous to our system while in health, when taken internally, is carried to the blood. By giving sassafras bark in form of pills, in the course of three or four hours it can be smelt in the urine, and by continuing its use for a number of days in warm weather, the perspiration will give off the odor of sassafras, showing that it has entered the circulation, and after producing its remedial effect, it is like any other matter passed off through the common pores of the body as with urine, perspiration, &c. Sarsaparilla, and many other active medicines that are capable of removing eruptive diseases enter into the blood. Some medicines act in a double capacity, one portion being assimilated and the other not, the former enters the blood while the latter acts upon the nerves.

There is a poison in the grain that we eat, yet the great portion is homogeneous with our systems, and that which is not acts on the nerves. All that class of medicines that does not alter the functions of the system, while in health, are capable of being absorbed and carried into the blood. I do not think the changes that medicines and other substances undergo in the system are depending on a chemical change or process, but on *Vitality*. Without vitality organic matter would cease to be, and we would soon crumble into the inorganic kingdom.

That class of medicines which is not capable of assimilation produce their remedial effects by the impression made on the nervous system. We cannot suppose for a moment that lobelia, ipecac, or emetic tartar enters into the blood in order to produce vomiting; they stimulate the nerves of the stomach and diaphragm, which throw their stimulus upon the muscular coat of the stomach and the diaphragm, causing a spasmodic affection which produces the evacuation. If we take Cayenne pepper or mustard we could not suppose that it would enter the circulation before we felt the warmth or stimulus in the stomach. All that class of medicine which acts especially as stimulants or are narcotic, have their remedial effect through the medium of the nerves.

If we have a pain any where it is in consequence of pressure on the nerves at that point; a common boil on any part of the body will produce considerable pain; in order to relieve it, we take internally and apply externally to the affected parts something that acts as an anodyne, thus destroying the action of the nerves and relieving the distress.

Stimulating medicines are often given when the patient is debilitated or sinking, as alcohol, &c. This does not enter into the circulation, in order to produce its stimulating effects; it is done by the medium of the nerves. Electricity produces its stimulating effects by exciting the nervous system.

It is reasonable to suppose that the blood can be vitiated by causes that excite the absorbents, if by no other causes, for they terminate in the venous system.

We cannot cure the venereal disease without the use of internal remedies, although the disease is produced by inoculation; if this depended entirely upon the nervous derangement, the only remedies that would be necessary to remove it would be external applications, because the disease was received externally, and only those nerves that are situated about the parts could be affected.

ABSORPTION.

There are many persons in the firm belief that the skin absorbs substances that are applied to its surface. But to me, I must confess that there are obstacles in the way, of such magnitude, that I have come to the conclusion that the skin, while in health, does not absorb any substances that come in contact with it. But before discussing the subject we will give the arrangement of the skin.

The cuticle, on the external coat, appears to be a filament spread over the external surface of the body, and of a cellular nature; it appears to be for the protection of the organs that are behind it. At birth this covering is very delicate, but as we advance in years, and are variously exposed, this thin pellicle becomes thicker in order to protect the parts immediately under it; thus we see the thickening of the cuticle on the palms of the hands and the soles of the feet.

The second coat is called Rete Mucosum. This is a soft coat under the cuticle, and is very vascular; in this coat the arteries terminate and the veins

begin; in this coat is lodged the coloring substance that gives to persons their peculiar color.

The third coat is called *Cutis Vera*, or true skin. This is the deepest coat of the skin, and lays on the common integuments; this, as the others, covers the whole body. Its external surface is more cellular than its outer surface, but its external is more vascular, and is supplied more freely with nerves. This in a few words is the arrangement of the skin.

The *Rete Mucosum* is attached to the true skin by its vessels and nerves, for in the *rete mucosum* the vessels and nerves terminate; the cuticle is held in its place by fine hairs and the close communication it has with the *rete mucosum*.

On examining the cuticle with a microscope, it has the appearance of fish scales, or is valvular; and when any part of the system is exposed to much friction, or any part of the skin is constantly rubbed, this thin pelicle is thrown out, on such places, let the spots be large or small, for the protection of the vessels and all other organs immediately under this scarf skin. When a man stops laboring, his hands peel and become soft, there being no more use for the thick skin.

I think that the above remarks establish the fact that the scarf skin is for protection, and that only. If we believe (which no one will doubt, I think), that the external scarf skin is in scales like the scales of fish, this arrangement will prevent any external substance from passing in from without; but on the contrary, substances can, according to this arrangement of the external layer, pass out from within. We know that perspiration, in abundance, passes out through the skin.

The skin is one of the great outlets of the body, and nature takes this course to rid herself of substances that would prove detrimental to health, if allowed to remain, or have to be thrown off in some other channel. If we have this matter constantly passing through the valvular or scaly cuticle, how can substances pass in through the same places? We say that it is impossible.

Professor Parker, one of the most able surgeons and anatomists in this city, says of this subject, if there are no absorbent vessels going in from the surface, independent of those coming out, the theory of absorption by the skin is to him unfounded. Neither Anatomy or any experiments that I have made, have demonstrated to my satisfaction, that there is more than one set of pores, as they are called, and these pass outward.

I believe in reality that there are no regular vessels coming to the entire surface; but that this aqueous vapor presses against the internal surface and thus opens the valves or scales, and passing out, becomes condensed on the outer surface in the substance called perspiration, while the gaseous particles are set free. Carbonic acid gas is thrown off in large quantities, and in this manner, the lungs are in a great measure relieved from throwing off so much carbon as they would otherwise have to, if the healthy action of the skin is interrupted.

Many men have labored hard to satisfy their own minds that the skin does absorb. One says if mercury is rubbed on the groin of a person it will salivate him; there are various substances which, when applied to the skin will produce the same effect as if taken internally, only it requires a larger quantity. I believe that all applications to the skin which affect the general system operate entirely through the impression which they make on the sentient extremity of the nerves.

One drop of prussic acid applied to the tongue or in the eye of a rat will produce death in a few moments. Can we suppose in this case that the poison enters the circulation? I think there are none so foolish as to believe it. Death is produced by the impression made on the nervous system. In many diseases of the eye we put around the lids extract of stramonium or

belladonna to dilate the pupil, yet we cannot think that it enters into the circulation. So long as the cuticle is not disturbed and is sound in every part, absorption cannot take place by way of the skin. Common sense and the anatomical arrangement exclude the idea.

But if the cuticle is raised up, either by friction or a blister, then substances are applied to the Rete Mucosum, in which layer of the skin the arteries terminate and the veins commence; here are innumerable lymphatic glands or ducts ready to take up any substance that may be applied, and carry it into the circulation. Thus, by sprinkling opium on a surface where the cuticle has been removed by a blister all the effects will be produced that occur when this article is taken internally. But if you apply it to the sound skin no such effects will be produced. In this case it is reasonable to suppose that it is absorbed by the lymphatic ducts of the Rete Mucosum, and carried into the system and there exerts its influence.

If the skin would absorb when sound, those persons that work in dyes would change their color as many times as they change the color of their stuffs; in fact, all substances that we come in contact with, of a watery or gaseous nature, would be absorbed, or portions of them, and the system would be compelled to receive them, however detrimental they might be to the general health. I have tried many experiments myself; for instance, after a thorough washing, I have been accurately weighed, then immersed for five minutes in warm water; came out, and wiped gently until dry, then weighed again; the same was done with others, and in every instance the weight was diminished considerably, varying in the ratio of the temperature of the water.

We can handle opium, arsenic, and other poisons with impunity; or rub on our hands liquids, that would if taken internally, produce death. Dr. Combe, after laboring to prove that skin does not absorb, says, "in man absorption from the surface is greatly retarded by the intervention of the cuticle, and it is universally admitted, when this obstacle is removed, the process goes with great vigor;" in another place he says, "it is quite certain then, that the skin does absorb, the only doubt is, as to what extent the cuticle operates in preventing, or modifying that action, when friction accompanies the external application, the cuticle, as we see exemplified in the use of mercurial and other liniments, is not an efficient obstacle; but when friction is not resorted to, and the substance applied is of a mild unirritating nature, such as oil, it may remain in contact with the skin for a long time, without being taken into the system in appreciable quantities. If however, it is irritating like Spanish flies, absorption speedily begins, and is carried on through the cuticle, as is proved by the effects produced on the urinary organs."

It is a hard matter for this man to believe that the skin absorbs, while the cuticle is whole. If you apply opium to the arm, and have it so secured that the air cannot pass from the arm to the lungs, in this way there will be no communication, except by the circulation from that part of the arm that has the opium on, the effect of the opium would not be seen; but if it is applied to a surface where the cuticle is destroyed, then we see the full effects of the opium on the system.

I believe absorption by the way of the skin, to be this: If we rub any liquid substance on the skin, and that liquid is as thin and delicate a fluid as the serum of the blood, and at the same time the rubbing is rather severe, or there is considerable irritation; in this way the cuticle is deranged, and the valvular structure is broken, and the substance so rubbed on, comes in contact with the *rete mucosum*, and in this way pass into the general system. And as the nerves terminate in the *rete mucosum*, any substance of an irritating nature stimulates them to an increased action; and I believe that all medicines, whether taken up by the absorbents of the *rete mucosum*, by the intestines, or in any other way, exert their influence on the system, or on certain

parts of the system, by the impression they make on the nerves going to the diseased part; except such substances as can be to a considerable extent assimilated to our general system, without producing effects that would be detrimental to the economy of life. If we take spirits of turpentine, or tincture of Spanish flies, it irritates the urinary organs, and I believe through the impression that is made on the nerves, on the other hand, there are many medicines that are not direct stimulants, and some even contain nutriments; all such I believe enter into the circulation, and exert their remedial influence by the agency of the circulation. The oxide of iron, the extract of sarsaparilla, and other vegetable and mineral medicines, in my opinion, enter the general circulation and produce their remedial effect in this way.

We need not fear any substance being absorbed through the skin, as long as the cuticle is unbroken, but the difficulty arises from the fact that some allow their skin to get crusted over with the various substances that are thrown off, and in this way clog up those little valves of the cuticle, and thus interrupt the functions of the skin, and prevent the exhalations from passing off, thus compelling them to take another direction. The carbon that should pass off by the skin, must go to the lungs, in order that the system should be freed from it; but it is not always the case that the lungs can perform the entire duty of the skin, and their own too; this is one of the fruitful causes of consumption; therefore we can see the importance of cleanliness, and of not burdening the body with too many clothes, and of frequent changes in our dress; no person should wear in the day what they sleep in at night.

The remarks here made relate only to the absorption of the skin; in discussing the phenomena of digestion and nutrition, the matter of absorption will be again referred to. I have dwelt longer on this subject, than I otherwise should, if it had not been for the fact, that so many unfounded theories have been held up before the community on this important subject, especially to the physician.

ON BATHING.

There has been many opinions, as it respects the manner in which water should be used as a remedial agent, or for the ordinary purposes of cleansing the skin, also whether there is any advantage arising from the free use of water, either warm or cold, while in an apparent state of health.

We shall contend that water is an indispensable article to the comfort and health of all persons, without which we would be subject to many diseases, that would otherwise be avoided by its proper and timely use.

Cold water is an astringent, and tonic, when applied to the external surface, when taken internally, is diuretic, and when warm, it produces great debility.

There are none but what will admit that a pure and clean skin, is the great desideratum wanted for the prolongation of our lives, and the continuation of our health. There should be as uniform a course pursued in winter as in summer, in bathing; let a person commence bathing in the summer, in cold water, and continue the same through the winter, and while bathing, let a draught be taken internally.

The manner adopted by myself, and which I would recommend to others, is when first rising in the morning, take off all the night clothes, and after washing the face and neck as much as necessary, with clean rain water (if it can be got) and pure soap, then with the hands wet the whole body and limbs, after which rub smartly with a coarse towel till dry, sawing it about the body and extremities in order to create a determination of blood to the surface; this done, dress as soon as possible, take a small draught of water,

and leave the room; the whole process need not occupy more than three minutes. If convenient, take a short walk in the open air, if not convenient to go out, walk about the house away from the fire: after a few trials, this will be found a luxury, instead of a task. I have broken the ice in my pitcher many times, and with the thermometer near zero in my room, have performed this, to me, agreeable duty; a warm glow will always follow, the countenance becomes fresh, the appetite is regular, and all who have followed these directions, concur with me in these statements.

While in the habit of wearing thick and heavy clothing, using warm water in cold weather to wash in, for fear of taking cold, my health was delicate, frequently having a hacking cough, the muscles were weak and relaxed, appetite poor, bowels irregular, and finally, the whole system drooping, until many thought I would die with consumption. But since leaving off the thick clothing, and using cold ablutions, my health has returned, and I can stand exposure to colds and damps with less clothing than formerly, and yet feel more comfortable, and am less liable to cold on the lungs.

There is no substance that operates so readily on the kidneys as cold water, especially while in moderate health; if there is disease other means should be used, but to prevent disease of the urinary organs while in health, cold water is one of the best means that can be used.

Warm water applied externally, especially in the form of a warm bath, produces great debility, causing some who are weakly to faint. If we wish to relax the system, take a warm bath; on this account physicians use them for diseases that require a relaxation of the system: if there is difficulty in entering a *catheter* for spasmodic stricture, a warm bath is resorted to, in order to relax the muscles, often producing the effect when all other remedies have failed.

I cannot carry the use of cold water as far as the Hydropathists, and believe that it will cure all the diseases flesh is heir to, yet I do believe as a general thing, it is not used enough for the good of ourselves and posterity, as many cutaneous diseases might be prevented by washing ourselves, and children in cold water. Water like all other good things, must in a proper manner be persevered in.

If many of our young ladies, and gentlemen, would sleep in a room without fire, and use water as is here recommended, instead of a pale, emaciated and feeble countenance, they would have a bright, healthy and rosy color, painted by the hand of health, and decorated as the God of Nature intended, and not by the arts of the toilet room.

Volumes might be written on this important subject, but we must let these hints suffice, hoping the reader will improve by them.

CLOTHING.

On this subject volumes have been written, and various opinions set forth, with a long hypothesis, capable in numerous instances of only deceiving those who would trust them, and those who followed the examples set forth for a time, have finally been obliged to abandon them as not only unprofitable, but in many cases absolutely detrimental; those persons often shut the door against any other propositions, however sound they may be, wrapping themselves in their own opinion, though based in error, until their health is irrecoverably lost, they not having an opportunity to test their own notions, or any others. But nevertheless when facts are put before the people, proves by analogy and common sense, that the subject should have due weight in the minds of every one. It is true that there are some ready to find fault with every thing that is said and done by any other person than

themselves, and even before they have tested the merits or demerits of the matter in question. Such persons I do not expect to please, in this article, or in others that I have written in this work. But I do not expect to meet with so much opposition in the articles used, as in the way they are applied to our system; for when we apply clothing to our bodies that shall feel comfortable, and withal has a good share of durability, and serves as an external protection to our physical system, that man (from custom in a great measure), is in want of viewing it simply in this light; clothing should be made for our convenience, comfort, and happiness, and a change in the fashion would seldom if ever occur. The opposition, in a great measure, will arise from a certain class of persons called Fashionable Tailors, and Dress-Makers; the oftener the fashion changes, the oftener a new suit must be made, and what is the most extraordinary about the matter, is, that the clothing throughout is made to fit the eye instead of the body, and the persons who fit the clothing are egregiously ignorant of the physiological condition of the human species, and the laws of life that govern them. Those that monopolise the fitting of clothes (as it is called), take but little pains to make themselves acquainted with the anatomical arrangements of the vitals and other important organs, over which they are binding and straining their elegant fit. The body must yield to the capricious ideas of a tailor, or dress-maker, to whose dictum a fanciful and misguided community, instead of being governed by the laws of common sense and propriety, they yield implicit obedience. What is more revolting to the feelings of modesty, than to see a young man put up in stays and corsets, until he cannot bend in any way with ease or freedom, and in this way arresting the free action of the lungs, heart, stomach, and in fact curtailing the action of all the vital organs, and laying the foundation for premature old age and the grave. While we condemn this irrational distortion in males, we cannot too severely censure the conduct and actions in this respect, in females. To see a young lady that God intended to be fair and beautiful, drawn out of shape instead of in shape, by the means of cord and pulley applied more firmly by a dress-maker, when they are about to appear with a new costume; the extra faculty they have in making a female's waist terminate any where between the arm-pits and the hips, appears ridiculous to all except the fop. Another evil habit that young men and ladies get into in order to have their clothes so fitted, as to show a good figure, as they call it, is, a young lady wants to have her dress cut low about the shoulders, and a young man must have his coat collar low and gracefully thrown back and his breast exposed to a cold chilly wind, to look well. I believe that the fancy way young persons have in dressing is often the first stepping-stone to great vices—led on from this first step to others until it proves their overthrow. Let it here be said, that modesty is one of the greatest gems that a young person can possibly possess; take every thing but that, and they will shine like a star in the firmament. If those Fashionable Tailors and Dress-Makers would study the physical and moral system, much more good would be done and many diseases prevented.

Some years ago it was the fashion for ladies to have their waists nearly as high as their arm-pits; this was a better plan than it is at the present day, for the waist at the present time has got down near the hips; in the first place, if their clothes were tight, they had the firm ribs to press against and thus prevented the pressure on the lungs and heart, and if they did make some pressure on the lungs they could settle in the abdomen and perform their duty. But as the fashion is at the present day, they must lace tight at the bottom and rather loose at the top. In this way the lungs are crowded into the upper part of the chest, and likewise pressing on the heart instead of dropping down on the diaphragm and into the upper part of the abdomen. In this state of things the functions of the heart and lungs are inter-

rupted; the lungs cannot be fully inflated; there is a difficulty of taking a full breath by a constant crowding of the lungs; an irritation sets in, a tickling cough ensues, and finally, a permanent disease of some kind makes its appearance, and the victim to *tight lacing* goes to her premature grave, a martyr to a fashionable dress-maker.

Why not live in the shape that we were created in—have clothes that fit us, and not we to fit them—and thereby enjoy a good constitution, and with it a sound and energetic mind. I feel that I have been severe in some of my remarks, but still they are spoken with all sincerity.

The amount of clothing that we require to make us comfortable in cold weather, depends much on habit. You see some poor person, and mechanics, go all winter very thinly clothed; they take free and open exercise; their countenances are flush, showing the great activity of the circulation; their digestion is good, and all the functions of the system are energetically performed although thinly clothed; cold weather and disease are generally remote from them.

Persons that are able contrive many ways to shield themselves from the cold, and preserve their health, and thereby lengthen out their days to a good old age, but the means used often produce the contrary effect. They are in the habit of wearing one or two flannel shirts and drawers; they put on in very cold weather a buckskin suit; this forms a common suit while about the house; when they go into the open air, they then put on, in addition, one or two overcoats, or cloaks. Both males and females leave their feet thinly clad; a tight shoe or boot, with a thin stocking, form the main covering for the foot in all weather. This is wrong; I believe we should wear no more clothes than is absolutely necessary. When a person that is in the continued habit of wearing much clothing steps out in the cold atmosphere, with his thick clothes on, he will be as soon chilled as one that is in the continued habit of wearing lighter clothing. Those that are in the habit of wearing warm clothing, do necessarily shut out the atmosphere from the skin, and in this way the skin is made soft and tender, and where such persons are exposed to the cold, the sudden impression that is made on the skin by the cold atmosphere, gives a chilliness, or something like an ague, that we cannot resist or help, and at the same time when we are constantly clothed with thick clothing, the matter that the skin should throw off in form of perspiration, is in a measure stopped, and is turned into the lungs to be discharged in that way. The skin throws off, while in health, a great amount of carbon, and if from any cause it is turned into the lungs to be discharged by them, it calls upon them to do more than they are intended to do, and the consequence arising from that is disease of greater or less magnitude. There are some persons that say they got a cold in the fall, and it lasted till spring; in such persons the pores of the skin are closed by the secretions of the body, caused by this unnatural amount of clothing, together with uncleanness, and thereby causing a great amount of gas to be thrown off by the lungs, which is the cause of supposed cold. All the clothes that are worn through the day should be taken off at night, in order that the air can circulate freely through them, and this makes them fresh to put on in the morning. There has been more hurt done by too much clothing than there has been by too little.

Never cover the head at night, for this causes a determination of blood to the brain, and weakens the mental faculties. Always wear linen or cotton next to the skin, and especially to sleep in; if you wear flannel, it relaxes the skin, causing an unnatural perspiration, and thereby weakening the system, producing restless nights and frightful dreams. It likewise is the fruitful source of many nervous affections that affect those who are burdened with clothing day and night.

There are many persons that bring on themselves diseases of the lungs

that prove fatal, by shutting out the air from their body by this unnatural amount of clothing; the pores of the skin are clogged by the substance that should pass off in the atmosphere, for in that way the lungs are greatly relieved. Carbon, that the skin and lungs throw off, is a poison when allowed to remain after it is no longer fit for use in the system, and by it rejected.

The habit of wearing tight boots and shoes, and withal very thin, and the rest of the body warmly clothed makes a disproportion in the warmth between the body and the extremities; in this way severe colds are caught even in mild weather. We should be as uniform over the whole body as possible, in our dress; this makes a uniform action in the circulation, and those persons living in the city should keep their feet dry. Persons in the country are in the habit of going without stockings, and consequently they are tougher from being constantly exposed; where the feet are constantly covered the skin is thinner and easily affected.

The remarks that I have made in regard to clothing are applicable to adults. As it respects clothing of children, I refer you to the following appropriate remarks made by my father :]

The clothing of an infant is so simple a matter, that it is surprising how any person should err in it; yet many children lose their lives, and others are deformed, by inattention to this article.

Nature knows of no use of clothes to the infant but to keep it warm. All that is necessary for this purpose, is to wrap it in a soft loose covering. Were a mother left to the dictates of nature alone, she would certainly pursue this course. But the business of dressing an infant is in a great measure out of the hands of mothers, and has principally become a secret which none but nurses pretend to understand.

From the earliest ages it has been thought necessary that a woman in labor should have some one to attend her. This in time became a business; and, as in all others, those who were employed in it strove to outdo one another in the different branches of their profession. The dressing of a child became of course to be considered as the midwife's province, who no doubt imagined that the more dexterity she could show in this business, the more her skill would be admired. Her attempts were seconded by the vanity of parents, who, too often desirous of making a show of the infant as soon as it was born, were ambitious to have as much finery heaped upon it as possible. Thus it came to be thought as necessary for a midwife to excel in bracing and dressing an infant, as for a surgeon to be expert in applying bandages to a broken limb; and the poor child as soon as it came into the world, had as many rollers and wrappers applied to its body as if every bone had been fractured in the birth; while these were often so tight, as not only to gall and wound its tender frame, but even to obstruct the motion of the heart, lungs, and other organs necessary to life.

In some countries the practice of rolling children in so many bandages, is in a measure laid aside; but it would still be a difficult task to persuade the generality of mankind that the shape of an infant does not entirely depend on the care of the midwife. So far, however, are all her endeavors to mend the shape from being successful, that they constantly operate the contrary way, and mankind becomes deformed in proportion to the means used to prevent it. How little deformity of body is to be found among uncivilized nations! So little, indeed, that it is vulgarly believed they put all their deformed children to death. The truth is, they hardly know such a thing as a deformed child. Neither should we if we followed their example. Savage nations never think of managing their children. They allow them the full use of every organ, carry them abroad in the open air, wash their bodies daily in cold water, &c. By this management their children become so

strong and hardy, that by the time our puny infants get out of the nurse's arms, theirs are able to shift for themselves.

Among brute animals, no art is necessary to procure a fine shape. Though many of them are extremely delicate when they come into the world, yet we never find them grow crooked for want of swaddling bands. Is nature less generous to the human kind? No; but we take the business out of nature's hands.

Not only the analogy of other animals, but the very feelings of infants tell us, they ought to be kept easy and free from pressure. They cannot, indeed, tell their complaints, but they can show signs of pain; and this they never fail to do by crying when hurt by their clothes. No sooner are they freed from their bracings than they feel pleased and happy; yet, strange infatuation! the moment they hold their peace, they are again committed to their chains.

If we consider the body of an infant, as a bundle of soft pipes, replenished with fluids in continual motion, the danger of pressure will appear in the strongest light. Nature, in order to make way for the growth of the children, has formed their bodies soft and flexible, and lest they should receive any injury from pressure in the womb, has surrounded the *fetus* everywhere with fluids. This shows the care which nature takes to prevent all unequal pressure on the body of infants, and to defend them against every thing that might in the least cramp or confine their motions.

It would answer little purpose to specify the particular species of dress for an infant. These will vary in different countries, according to the custom and humor of the parents. The great rule to be observed is: *That a child have no more clothes than are necessary to keep it warm, and that they be quite easy for its body.*

Stays are the very bane of infants. A volume would not be sufficient to point out all the bad effects of this ridiculous piece of dress, both on children and adults. The madness in favor of stays seems in nowise abated, notwithstanding the fearful quota it furnishes to the swollen list of consumptions; but it is hoped the world will, in time, become wise enough to know that the human shape does not solely depend upon whalebone, steel, or bend leather.

I shall only add with respect to the clothes of children, that they ought to be kept thoroughly clean. Children perspire more than adults, and if their clothes be not frequently changed, they become very hurtful. Dirty clothes not only gall and fret the tender skins of infants, but likewise occasion ill smells, and, what is worse, tend to produce vermin and cutaneous diseases.

ON THE TEMPERAMENTS.

This is a subject of great importance to every person, however high or humble his situation, occupation, or calling may be; by understanding this subject thoroughly we will be enabled to read the characters of others by an external observation.

Mankind is governed, in a great measure, by the natural temperaments that they are born with. Some may be reared in seclusion for a time, but if their temperaments do not suit that form of life, they will be seen, sooner or later, to work their way out, and either raise themselves to some eminence or degrade themselves lower than their original station. We see some persons, although born of high rank, having all the advantages of education and the instruction of moral and religious parents and society, as soon as they attain to an age that fully develops their temperaments, start out with the vigor and energetic action of youth in pursuit of some new object that they would accomplish; boasting and loud in their conversation, while their steps tend downward, until they reach the lowest scale of human degradation. Others again are content to stay where they were born, having no disposition to alter their condition or to improve in science or literature, being willing to grow up in obscurity and die unheard of. Another will have a disposition to amass wealth, to be a miser, starve himself and family, go grumbling about hard times, hard fortune, such and such a one want to cheat and rob him; and all the comfort he has is in counting his gold and contriving to get more: he dies a beggar in his heart although worth his millions of wealth.

Others care not for fortune, their god is fame, at whose shrine they will sacrifice every thing, if they can only ride from conquest to conquest, and shine the first in war, diplomacy, politics or literature.

Some have or pretend to have an eternal enmity against the world and all things in it, and yet without the courage to be an open and avowed enemy, are always ready, assassin-like, to stab you in the dark.

It becomes us, then, to study well the characters of men, in order that we may conduct ourselves accordingly in all our intercourse with them. Some may receive an insult, or an imaginary insult, to-day without showing any signs of displeasure; but to-morrow, should he meet you alone, while he is saying, "art thou in health, my brother?" his dagger is plunged in your vitals. Others will knock you down, if they can, on mere suspicion, ere the insult is half spoken, or the act if intended half consummated, or otherwise, they will grieve and fret over it until finally exhausted. While another will show his contempt of the insult and its author, by a perfect nonchalance.

All these may be explained by the different temperaments, to a description of which, without further preface, we will proceed.

The temperaments are divided into four kinds. First, Lymphatic; second, Sanguine; third Bilious, and fourth Nervous.

It is seldom in this country that those temperaments can be found pure in any one individual. We generally have the compounds, or a combination in different proportions, although one or the other may preponderate. Thus, if bilious and lymphatic are in the same individual, there may be two parts bilious and one lymphatic; or the other temperaments may unite in different proportions. In order to understand this more fully we will describe each temperament separately and then a few of the combinations.



LYMPHATIC TEMPERAMENT.

The Lymphatic Temperament is known by a pale white complexion, fine light hair, frequently thin, full and round form of body, generally fat, frequently having a double chin, muscles rather soft, extremities large, joints covered with fat, and dark-hazy, sleepy-looking eyes; the blood is tardy in its movements through the vessels; the assimilating organs are generally good, and the appetite is strong and frequently indulged; their physical powers are generally limited, and in some particulars, nearly or quite wanted.

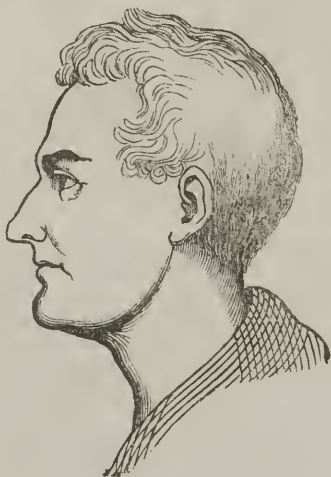
This temperament is produced by the great activity of the absorbents, which are capable of taking up greater quantities of chyle and more rapidly than in any other temperament, consequently a person in whom this temperament largely preponderates, or is entire, wants food in great abundance, although he may not be very fat, yet he has digested and carried into the system, a great amount of nourishment; and in such cases the waste of the system is active. They defecate great quantities; their urine is frequent and high colored; the perspiration has a disagreeable odour, and the skin is rather greasy. Those effects diminish in those who are inclined to grow fat or corpulent. In the same ratio that this temperament exists the individual will be averse to labor either of the mind or body, and will do no more than is for his actual interest, or what necessity compels him to; he will

“ Turn on his couch

Like ponderous door upon its weary hinge,
And having rolled him out with much ado,
And many a dismal sigh and vain attempt,
He sauntered out, accoutred carelessly,
With half oped, misty, unobservant eye,
Somniferous, that weighed the object down,
On which its burden fell.”

He is penurious and slovenly in his habits; his clothes may be clean yet they do but hide a dirty skin. He will make a quiet neighbor unless you disturb his miserly propensities, which will not allow a straw to be removed without payment. He will never refuse an invitation to dinner, in fact he will gorge himself at the tables of others while his own board will be spread with the cheapest fare. At an entertainment he will think more of the supper than he will of the amusements; he will be the first at the table and the last to quit it. He is always ready to receive but never to give. He has a desire for learning limited to the extent of his necessary business, while generally a good share of self-esteem makes him an apt critic.

He is seldom or never raised to any eminence; the name of a rich man is preferred by him to any name upon the book of fame. A stranger to all feelings of sympathy for his fellow creatures; a beggar from such a one will receive more scowls than pence. He can never be a robber or a concoctor of treasonable or daring enterprises, although always "ripe for the spoils;" treason and stratagem, are not in his nature; hence Cæsar says "Let me have men about me that are fat."



SANGUINE TEMPERAMENT.

The sanguine temperament is known by a well-defined form, moderate plumpness or rotundity of person, flesh firm, muscles and tendons well and strongly marked; all the joints are small, while the chest is large; the head is rather small, countenance flushed, hair light and inclined to chestnut; the eye is blue and restless, the stature is erect with the head well up, the movements of the body and mind are quick and vivid, and the memory prompt.

This temperament is produced by a capacious chest and lungs and the free absorption of oxygen received from the atmosphere; this oxygen and the great rapidity with which the blood moves through the lungs, create (according to Professor Liebig) and increases heat, which gives to the brain its great and frequently over activity, and to the muscles their redness, strength and size. When we consider that the heart and lungs are large and propel the blood with velocity through the entire system, it is easy to imagine that the mind and passions must be quick, and that, in consequence of so much vascular action thrown on the muscles, they in turn, must be increased in size and power, endowing the physical system with great strength, while the brain, which is small, is easily excited and often propels the individual to hasty and inconsiderate actions which he soon has to regret. The larger the heart and lungs, the greater will be the courage of the individual; he will break through all obstacles that may stand between him and that which is to satisfy the present desire:

"That unconquered soul,
No laws can limit, no respect control."

A person of this temperament is never idle either in mind or body, yet his labor seldom amounts to any thing, as his volatile propensity will not allow him to think or act long enough on any one thing to perfect it; he is always ready to start on any new project that his erratic brain may prompt, regardless of the consequences; he is always wanting to get rich in a day, and is always reaching after something that he seldom attains to; if it requires time, and if attained, it is soon abandoned for something new. He will indulge freely in the pleasures of life, worshipping at the shrine of Bacchus, while the gambling-table is the altar at which he sacrifices, and although in rags, with haughty air he walks, a libel on the image of his God. In love he is more fickle than the wind, and at the very time one would suppose him fast in the snares of the wily god, he is the farthest off—and yet disgust follows close upon the heels of his pleasure. In a word, he can never be a man of science, for want of patience and application; he can never make a good governor in any situation, for want of reflection will lead him to acts that he will soon regret; if he arises to address a public assembly, you may expect a rough and boisterous harangue, a storm of windy words which soon blows over, and then the speech is done; arouse his sympathies in your favor and there is nothing too good for you; praise him and he works well. These are the general traits of the sanguine temperament. He generally enjoys good health, but when sick, it is almost always of an inflammatory disease.



BILIOUS TEMPERAMENT.

The bilious temperament is known by coarse and dark hair, black eyes, the sclerotic coat of which is sometimes tinged with yellow, skin dark and sallow, expression of the countenance strong, and the eyelashes heavy, the whole body is rather thin, yet the muscles are hard and firm, there is a uniform size of the head and chest, yet the whole contour of the individual is rather forbidding.

This temperament is produced by an excessive action of and determination to the biliary organs, the pulsation is slow, and the circulation through the lungs and system sluggish, the digestion is good, and the appetite is not craving. In consequence of the slow movement of the blood through the lungs, it does not receive a great amount of oxygen, and consequently so much heat is not generated and thrown on the brain as in the sanguine; the result is a slow but sure movement of the brain, mind, and body. There is a strong determination of the blood to the biliary organs, yet all the mus-

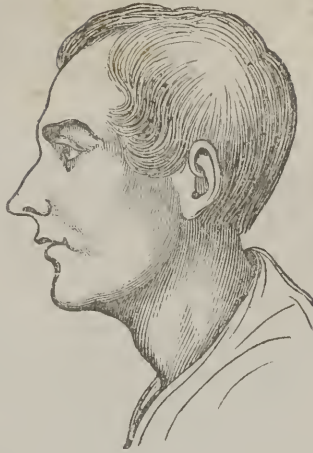
cular system is firm and strong, and in this respect and in the bony structure this temperament is closely allied to the sanguine.

An individual possessed of this temperament is slow to action, not easily excited by sudden events, but when fairly aroused the mind is inflexible; he is bold and resolute in whatever he undertakes, never ceasing until it is executed; his courage and activity is equal to any chance to which he may apply them; he makes his calculations correctly, dwells long over his subject, weighs well each circumstance, keeps his own counsel, and, having matured his plan, never stops until it is fully consummated.

The bilious temperament is ambitious; the individual possessing it, although born in obscurity, will by his indefatigable assiduity win the hill of fame in whatever road he takes; his march is onward, and although slow it is sure. He will be the ruler in all things, if possible, though not apt to rise upon the wings of popular opinion. He can never be made an instrument in the hands of others. His conversation is reserved; he thinks well before he speaks. He will crush alike his friends and foes to reach the object of his desire, and whatever secrecy, ambition, and a settled determination can attain, it must be had,

“Though the crushed world should curse him ere it dies.”

He will be great for virtue or for crime; his vengeance may sleep for years, but can seldom die; his affections and his hate are alike unalterable, although he may smother both to accomplish some desired end. An injury or a favor is never forgotten. None but a bilious temperament can plan and execute a “deep and damning plot” without detection; if he murders, his detection and conviction are doubtful; he will never allow his countenance to be the index of his mind, like the sanguine, who betrays the inmost workings of the soul. In this temperament, the faculties, both physical and mental, are early developed; they may be boys in age, but men in action. “Cardinal Richelieu, who possessed this temperament nearly pure, began when a boy, and soon raised and maintained himself in the highest ranks—feared by a king, whose authority he established, hated by the nobles, whose power he destroyed, haughty and implacable towards his enemies, and ambitious of every road to glory.” Such persons do not make good governors in schools; they are too stern and self-willed, not easy in their manners, and small trifling matters cannot occupy their mind. They indulge but little in the pleasures of the table, caring more for food for the mind than for the body. They are sometimes subject to melancholy, and when so their temper is violent, petulous, and irreconcilable; they think the whole world is against them; if insane, they are turbulent in all their actions and very difficult to manage. The diseases to which they are subject are generally of a bilious kind, for which emetics and cathartics are the proper remedies.



NERVOUS TEMPERAMENT.

The nervous temperament may be known by a large head, light eyes, small chest, thin hair, and rather a pale look. The muscles are thin and soft, the body is weak and cannot endure hardship, the head is rather inclined forwards, but taking little notice of what is passing, seldom seeing a person first; all the movements are quick and restless.

This temperament is caused by, or is the result of a weak and debilitated circulation. The chest is narrow, and but a small amount of oxygen can be thrown into the system by reason of the contraction of the lungs, there not being a sufficiency of surface for the atmosphere to spread on, in order that the oxygen may be absorbed and carried into the circulation.

We see in the lymphatic temperament the great action of the lymphatic absorbents, craving and carrying so much nutriment into the system. In the sanguine we see the increased circulation predominating; while in the bilious there is an excessive action in the biliary organs, and in the last we will find there is a greater activity of the nervous system. The brain is large; the susceptibility is quick, giving a quickness to all the movements of the body and mind. The health is generally poor; the constitution is delicate, and cannot stand much fatigue. There is a great mind lodged in a weak frame. A person of this temperament has but little power of body, not sufficient in many cases to execute, or obey the dictates of the mind, which is exalted and intelligent, refusing to stoop to any thing undignified. He will have a fine taste for the fine arts in all their branches. They require to be alone in their studies, as they are easily interrupted in their plans or work. Their productions are never of a light or trifling nature; they can never write a comedy, as their ideas are always reaching after the sublime and beautiful. This temperament must greatly predominate in a person who is a good portrait or decorative painter, for the predominance of any other temperament would not allow of that fine taste requisite in this profession; he could not pore over his work with that careful assiduity so necessary to make a canvass breathe; the minor points would be passed unheeded. There is no predisposition in this temperament to be the miser, or hoard up the things of this world; on the contrary, to have a good and honest name is the height of his ambition. He will never thrust himself forward, but rather requires urging to speak or write what he may know. He

is a good adviser in matters of the arts or literature, but bad in any thing that requires boldness or much physical energy to execute, always taking the dark side of the picture. He will govern by moral suasion instead of force; he will say but little in return if insulted, but will grieve over it by himself, being easily frightened either by words or acts; he is in fact

“A man in forehead but in heart a deer.”

The reader will perceive by the short description of the temperaments, when acting singly, or where one greatly predominates, as here given, that the individual, let his ruling temperament be either of the four, must be of an unhappy disposition; he is urged on to the extremes of gluttony, drunkenness, and avariciousness in the lymphatic; boisterous, restless, and inconstant in the sanguine; cool, calculating, and treacherous in the bilious, and timid and foreboding in the nervous.

These temperaments are nevertheless capable of being modified or extended to their fullest extent by circumstances, but when left to act free and natural, all the different modifications existing in an individual will be shown as exigencies may call them into action, either singly or compoundly. In order more fully to test the correctness of this theory, I have frequently visited our police and watch-houses, in order to see if the species of crime the prisoners that were brought in had been guilty of, could be told before their accusation was made known. In one instance there was a man brought in by two watchmen; after silence had been restored, the captain of the watch requested me to examine him and tell the nature of his offence; the eyes of the prisoner were blue and restless, his hair rather light, and his chest large, showing all the marks of a strongly predominating sanguine temperament; after my examination, I remarked that he was arrested for rioting, or some boisterous act; in a moment after the complainant entered, showing the wounds received from the prisoner in a street brawl. While speaking on the subject, another was brought in, quietly and still; he took his stand before the captain, showing in his cool and philosophical looking countenance a strong predisposition to the bilious. I remarked that he was arrested for some deep scheme, some dark plot, probably stabbing or robbing in the dark; on inquiry it was proved that he was guilty of plundering a house into which he had gained access by means of false keys, and when detected he nearly added murder to his other crime, by inflicting a dangerous wound on an individual with a bowie-knife. In my frequent visits to the several prisons, by studying the temperaments of the inmates I have seldom failed in telling the nature of their crime without the least previous intimation. If the sanguine predominates, his deed will be of a boisterous kind; if he commits a foul act, it is done in a hurry, on the impulse of the moment, and is seldom if ever premeditated; when caught (which he is almost certain to be), he soon confesses the whole, is deeply contrite for what he has done, and would do all in his power to place things as they were before; he will never commit the same act again if left to himself; he will never remain in a place where he has been guilty of any bad action. On the contrary, if the bilious predominates, all the calculations are made beforehand; even the smallest and most trivial points are nicely arranged, and after all the preliminaries are settled in some dark or secret place, and the long premeditated villany is executed, catch them if you can.

I have located, as may be seen, all the vicious or evil propensities of mankind in the sanguine and bilious temperaments, and it will be found that the individual in whom either may predominate, is capable of performing the crimes allotted to each. The other two temperaments are averse to crime; the nervous is so exalted and high minded that he would rather starve than steal; the lymphatic is fearful he will have to work while in prison, or that

the food furnished will not be sufficient for his gluttonous appetite ; he cares less for the obloquy attached to a prison, than he does for the accommodations.

But because the person has got the power to be a knave, it is not pretended that he must be one. We want the sanguine to give force and energy to our physical capacity, to enable us to endure the fatigues that the nervous or great mind directs ; we want the bilious, that our acts may not be hasty, that we may take time to think and reflect, to make deep and searching calculations, and to give us perseverance and patience in any pursuit, and the lymphatic is necessary to give us a degree of relish for the natural aliments of the body, and to deter us from giving when the object is unworthy or not entitled to the intended benefice. We will now give a few specimens of the

COMPOUND TEMPERAMENTS.

First we will take one who has two parts sanguine and one bilious. This may be known by brown hair, dark or grey eyes, yet on close observation a bluish tinge may be seen in them ; he will not be fat, but solid, with strong muscles, large chest, rather small but erect head ; his memory will be prompt and good, his countenance rather rough, and considerable hair on his body.

Such an individual is capable of doing a great amount of labor, he will rise early, and go to bed late, enduring long fatigue ; his sanguine gives him force while the bilious renders him persevering. If brought up in idleness and immorality, he will indulge in all the low vices, carousing, gambling and debauchery ; but if educated correctly, and good examples are set before him, he will make an ornament to society ; he will govern well, but will not be governed in a dictatorial manner, he can be persuaded but not driven ; on general subjects, his advice is good, although rather forward, talkative, and commanding considerable respect ; he will not be liked as a public speaker, his roughness is too prominent, he will make a good mechanic.

Take two parts sanguine and one nervous, this individual is known by a bluish eye, rather light hair, large chest, and a good sized head, body not fat and muscles middling firm, the countenance fair. Here we have force of mind and body, he will speak well, having a taste for fine words and fine things, the workings of his mind can be thrown off to good advantage, though rather quick ; he will make a good lawyer or minister, being capable of giving great force and effect to his language, ambitious of a high station, where he can show off his arguments ; he is proud and imperious in his manner. Such an one will get through the world well, though seldom rich. He will govern well, and at the same time can be governed ; he will never make a good mechanic for want of patience, (bilious). He may write well, but is seldom an author of works of much magnitude, for the same reason, he cannot dwell long enough on any one subject at a time without great difficulty.

The sanguine and lymphatic do not combine well without the intervention of a third ; but when they do combine, either two parts sanguine, and one lymphatic, or the reverse, we generally find a simpleton, because the sanguine makes them boisterous and the lymphatic gluttonous. In a majority of cases in which the individuals are born with these temperaments, we will see a noisy, voracious disposition, rather indolent, though ferocious when excited for a moment, every thing must give way for their dinner ; they generally grow up powerful and athletic.

When there is two parts bilious and one sanguine, being the reverse of the former combination, the individual will be known by dark hair, dark or grey eyes, rather dark complexion, the muscles will be marked, a coarse made person, lean, although stout ; such an one has the slow, cool, calculating action of the brain, yet with a sufficiency of sanguine to give him force, he

has the faculty of contriving and carrying out to the end any project he may think best to engage in. He is a good traveler, being able to endure great hardships. He will make a good soldier for an exterminating war, being brave, selfish, cruel and ambitious. It has been the temperament of several noted pirates that I have examined. In general the body and mind are sound, but the individual is not apt to seek for the highest rank in society, though if they possess it, they will never relinquish their claim without a struggle; their conscience is to a certain extent limited; their plans are never brought out until well matured, and then they must never rest until consummated, and in fact they never tire, either in mind or body. As masters of vessels and in all cases where it requires a stern and persevering government, they are the best qualified. As public speakers, their arguments may be good, and their language well chosen, yet they will seldom succeed in fastening the attention of an audience.

Leaving this combination, we will take another of equal proportions of *sanguine, bilious, and nervous*, this conjunction may be known by light brown hair, generally fair complexion, although sometimes a little sandy, bluish grey eyes sharp and expressive, moderately firm muscles, good sized chest, and head; manners easy and familiar. In such a person there is the energetic sanguine, steady bilious, and high minded nervous, giving at once great powers of body and mind, a high toned persevering ambition, "Fond of the power, but fonder of the prize;" "Fame, eternal fame's the main spring of his life." His life will be devoted to making an impression on the world's history, that shall endure forever, and he will succeed, for

"His course is onward, like the mountain stream,
That seeks to pay its tribute to the main;
Check its career, it overleaps the rock,
Or winds its sinuous course through other paths,
Until it hail the object of its aim."

His powerful mind will show itself on most all occasions, as a man of science he searches deep; as an orator, he will stand unrivalled, his arguments are strong, and given with a force of language that fastens his opponents, and pleases while it kills. He is a true friend, or an open enemy, frank, free and generous; he will never despoil a conquered foe. As a ruler, he will not only govern for to-day, but for ages yet to come: with courage unquestionable, he will yet if possible gain his point by diplomacy, but if drawn to the field, he will generally conquer, his plan of action being more on the defensive than on the offensive. He is seldom gloomy or desponding, but on the contrary, he is generally cheerful, full of hope and patience, continuing to the end in all things.

If we put lymphatic in the place of sanguine, that is, equal parts of lymphatic, bilious, and nervous, we have nearly the same results as the former, only the energies are modified, the individual is more penurious, and thinks considerable of his stomach, is rather inclined to fat, although not corpulent, he will preside with dignity and judgement in any situation. He can bear confinement, and consequently will make a good accountant, clerk, or lawyer, &c. He will not be fond of moving, but is more domesticated. He has a noble mind that when roused to action, will perform its part in life's drama in a masterly manner, he is seldom addicted to a life of profligacy, is easy in his affections, and vanity to a certain extent, will govern all his operations.

We will give one more combination, the nervous, and lymphatic, if two parts nervous and one lymphatic, we will see a large head, grey eyes, smooth face, small chest, rather large or fleshy joints, and generally a stoop when walking. A person of this temperament, is generally ingenious, always contriving and making some new invention. This is generally the temperament

of our great portrait and other painters, their language is good, and their works of art or literature generally of the highest order. Their health is generally poor for want of exercise; if they are not temperate in all things, their life is early terminated.

It is unnecessary to give at this time any farther examples, as the reader will be able to judge for himself, when, and in what proportion the different temperaments exist in any individual, by study and a reference to what has already been said, and the directions before given. We will close this article, by giving the temperaments, according to our ideas, of a few well known characters.

The temperament of *General Jackson*, is two parts bilious, one sanguine, and one nervous: this gives him great command over his mind, considerable secretiveness, and a capability of enduring great hardships. He never tires, is bold and daring, and in a measure, instils the same feelings into those about him. Headstrong and determined when he thinks he is right, this comes from the bilious, his sanguine gives him his great energy and force of mind and body, while his high toned principles of honor, that will not allow him to demean himself arises from the nervous. All who know him, know him to be a coarse made person, rather lean, and dark complexion, his hair in middle life was dark and coarse, showing the predominance of the bilious, while his grey eyes, showed that sanguine and nervous formed part of his composition. No man was ever more persevering and firm, he kept the reins of government in his own hands, and what he said was law, and could not be altered, and he would generally be sustained in any thing he undertook; he would in all cases enjoy his own fixed opinion, although the world was against him.

The temperament of *Henry Clay* appears to be equal parts of sanguine, bilious, and nervous. He has a good sized head and chest, a strongly marked countenance, and grey eyes. As we have described this temperament in another place, to which the reader is referred, we will merely remark here, that it makes him a high minded, ambitious and persevering man (from his sanguine and nervous). He is shrewd and watchful, his words are soft, but full of force, his arguments are impressive, and he will listen to the reasons and advice of others, keeping his own plans to himself.

The temperament of *Daniel Webster*, as well as could be judged by seeing him at a distance, consists of equal parts of nervous and lymphatic, at all events, those temperaments greatly predominate; he has a large head, showing his great mental powers, and a large heavy, though not corpulent body; his eyes are dark, and though truly a great man, it takes great subjects to awaken his gigantic powers.

If sanguine had been in the place of lymphatic, to warm up his enormous brain and give force and energy to his physical system, the treaty between the United States and Great Britain, known as the Webster and Ashburton treaty, would never have been arranged or settled at Washington; but would have been drawn in blood, and written with the bayonet on the field of battle. He would be an Emperor in spite of friends or foes. This was the predominating temperament of the Emperor Napoleon, and his career through life is well known.

But as it is, Webster will do his fighting in the legislative hall, or with his pen, and they must be subjects of magnitude, or he will not fight at all; it must be some such occasion as a speech at Faneuil Hall, Bunker Hill, Baltimore, Rochester, or Manchester, England. It is such occasions alone, that can arouse him; but when once excited, he outstrips all competition. Yet, with all this, he is rather penurious, and thinks much of his stomach; he may be raised to power by the exertions of his friends, but will never raise himself. As an ambassador, where business of importance would be crowded on him, he would stand unrivalled. "What are you going to do with me, if I leave:

the state department?" In my opinion tells his true lymphatic temperament, before he lets go of one place, he wants to be sure of another. Jackson, nor Clay, would never have uttered such a sentence, they would have been independent of any such idea.

I shall now leave this subject, it may have appeared tedious; but in my opinion, more time could be well spent in prosecuting this important study. My endeavours have been to give the outlines, hoping that some one may hereafter take up the matter, who is competent and able to give it his undivided attention. As the principles are real, not fanciful, and must so appear to all who may examine them in a spirit of truth. It is true we may have one temperament developed by nature, and changed by the force of circumstances. If an individual of a sanguine temperament was confined in a prison until all hope of release or escape had vanished, his ambition would be broken, and his temperament would to a certain extent, run into the nervous; but let him out suddenly to the air and freedom, and he will soon return to his former temperament; and in this manner they may all be affected, by forcing them into contrary channels, yet they must be kept so, or they will soon return to their natural element.

In children the case is different, with them the alterations may be made permanent. If a child is of highly active sanguine temperament, it is necessary that a permanent change shall be affected: to do this, another must be encouraged, either bilious, or nervous; send him to a warm climate for a short time, under a strict governor, who while the change of climate is affecting a change in his physical system, will instil into his mind the high moral, and religious duties; and let him be kept as much as possible on vegetable diet, as animal food tends to increase the heat of the system, and the child will start on some more noble or less dangerous road. If the lymphatic is strongly predominating, give him solid animal food, good and wholesome exercise, and plenty of it. Send him to a cold climate, that his sanguine may be increased. Put him to the most active business that you can, to give force of body, the mind is generally well inclined, and the result will be an improvement of both.

The same course may be adopted with the nervous, the mind is good, all we have to look after is the body. Many children are allowed to run into a lymphatic habit, by being brought up on watery or sloppy food, sleeping in damp and filthy places, or indulged in eating and drinking too much, with too little exercise.

By following the few hints here given, parents may bring up their children in such a manner as to make them good citizens, and the glory of their grey hairs.

THE PHYSIOLOGY OF SEEING.

The eye is one of the noblest organs in the whole human system. It is that which guides our footsteps through all the various windings of life, it is that which expresses joy or grief, it is the correct index of man's character, and, above all, it speaks the energies of his mind. See how it will sparkle and dance, as it were, when the mind is glad; and, on the other hand, if it is dull and heavy, accompanied with a dejected countenance, you may rest assured that that individual is unhappy; from it gushes forth those maiden tears that melt the stoutest and most obdurate passions of mankind.

Although they may all sparkle and glisten like diamonds in the noonday sun, yet each one has its meaning. For instance, the bright and intelligent eye shows that ambition is leading its possessor in his onward course. There is a peculiar and fascinating expression about the human eye, that has fre-

quently held the most ferocious beasts of the field at bay, who would, under any other circumstances, have destroyed us; even the red men of the forest have been kept submissive by the stern, flashing eye of the white warrior; we can also, by closely watching the expression of this organ, interpret the meaning of words, and by its movements, the action of the body. How all-important it is, then, that we carefully preserve this organ from harm; to do this, it is necessary for us to study the anatomy of this interesting and singular, yet noble organ.

Before we enter into the physiology of sight, it will be necessary to give a short anatomical description of the globe of the eye. This part, to a common reader, may appear at first rather complicated, but by a little patience and reflection on the subject, one person will be as able to understand it as another. I shall put the anatomy as short and as plain as possible, in order that the plain reader may not be lost in a multiplicity of unmeaning words.

SCLEROTIC COAT.

The first that I shall describe is the sclerotic coat. This coat is the external covering of the eye-ball, and is white and opaque; it is of considerable thickness; this, with the cornea, forms the entire covering of the globe. The optic nerve perforates the posterior part of this coat. Should the contents of the eye be discharged, the sclerotic coat would still retain its entire shape. So dense and firm is this external covering, that, should it be destroyed by disease, or any other process or operation, the whole of the internal parts of the eye would escape and blindness would succeed. The anterior part of this coat is grooved like a watch-case to hold the cornea in its place; it is so arranged that it does not allow of distention or contraction. It protects the more delicate organs that are contained within, and is also the main support of the globular figure of the eye. The next in order will be the

CORNEA.

This is so called from its being firm and transparent. It will allow the rays of light to pass through as readily as a piece of glass of the same shape would. The cornea is all that anterior part which extends as far round as the white of the eye (sclerotic coat), and is distinguished for its clear transparency. It is composed of different laminæ, and between each there is a delicate white fluid; if from any cause this fluid should become deranged, thick or turbid, blindness would certainly ensue. The cornea is convex on the outside, and concave on the inside, and is nearly round; it is set into the sclerotic coat similar to a crystal in a watch-case, and is covered with a thin pellicle, part of the tunica conjunctiva; (this tunica lines the lids of the eye and is the seat of many diseases); it is so firm and hard that it frequently turns the edge of a knife when an attempt is made to cut it.

CHOROID COAT.

This is the middle coat of the globe or ball of the eye, and lays immediately on the inside of the sclerotic coat; it is the vascular coat to the eye, as the pia-mater is to the brain; on the internal surface is situated the pigmentum nigrum, and the choroid coat terminates in the cellular processes near the iris.

The pigmentum nigrum is the black or deep brown mucous substance which lies between the choroid coat and the retina, and is easily washed away with a little water. It pervades the entire choroid coat, and is in immediate contact with the medullary pulp of the optic nerve. Its office ap-

appears to be to stifle the rays of light after they have impinged on the sensitive surface of the retina. Its blackness is probably occasioned by the absorption of light, as whiteness or color is the reflection of light from bodies that will not absorb it; in animals that are exposed to a bright light, this colored matter is thicker and capable of absorbing more of the luminous rays that come in contact with it; but in those that shun the day, and run on seeking their prey at night, it is of a silvery greenish color; this we may see exemplified in the cat, the owl, the wolf, &c., whose eyes are of a different color from man's; in such animals all the rays of light that can be had are necessary to be thrown on the retina, and but few, if any, to be absorbed.

THE IRIS.

This membrane is a kind of curtain suspended and floating in the aqueous humours in the anterior part of the eye, just behind the transparent cornea, having a circular hole in the centre to form the pupil; it is made up of muscular fibres, and, like the muscles, is capable of contraction and expansion; if we close the eye a moment, then suddenly open it to its full extent, we can see the iris contracting, and a consequent diminution of the pupil. The iris also regulates the amount of light that passes into and on the retina in order to form the different objects of sight; if we emerge suddenly from darkness to light, we cannot see plainly, because there is too much light thrown on to the retina, causing too great a stimulant for that delicate organ; but when the iris contracts, the superabundant rays are cut off, and we are enabled to see correctly. The iris is the easiest affected and the most delicate structure in the whole system; and on this depends, in a great measure, the color of the eye; the grey, the hazel, the blue and the black, are produced according to the thickness and transparency of the iris, which is fully supplied with nerves, and is always affected by the action of the retina; it not only performs so important a part in vision, but is subject to many formidable diseases.

We shall next examine the humors of the eye, which may appear a little confused to the plain reader, until he studies the whole anatomy of this organ.

AQUEOUS HUMOR.

This, as its name implies, is the watery humor of the eye, and is situated behind the cornea and before the lens. By looking into the eye we can see that the iris does not touch the cornea, and that the space between the cornea and iris, if filled up with this aqueous humor which spreads behind the iris, passes through the pupil and occupies the small space between the lens and iris, which latter, floating, as it were, in this humour, divides the chamber into two parts, except where the pupil is located, and it is therefore called by anatomists and oculists the anterior and posterior chamber, whereas there would be but one was the iris removed. This humour is secreted by the villous surface of the iris, and its office appears to be to extend the cornea and allow the free action of the iris. In operating for cataract this humor will escape, but readily accumulates again, and if, by any cause it becomes thick, the vision is impaired.

VITREOUS HUMOR.

This humor occupies nearly all the ball of the eye, and lies behind a lens enclosed within a membrane. It is white and glazy, yet rather tough, and although nearly as thin as the aqueous humor, in consequence of its

being confined within its membrane, it has a jelly-like appearance. On the anterior part of this humor there is a depression for the lens, and its office appears to be to keep the lens at a given distance from the retina, that the focus may be correct; it likewise distends the globe of the eye, in order that the retina and other organs which enter into the physiology of seeing may have more surface to spread and make and receive their impressions.

CRYSTALLINE LENS.

The crystalline lens is a small body, nearly round, and about the size of an ordinary pea. The anterior portion is rather flatter than the posterior, and is situated between the aqueous and vitreous humors, imbedded in the fore part of the latter, near the posterior surface of the iris, and is transparent, admitting the rays of light to pass through uninterrupted by its structure. By opening an eye the lens can be easily pushed out, though not so easily broken down by any pressure of the fingers. It is enclosed within a little delicate capsule or membrane, which is often the seat of cataract.

THE RETINA.

The retina is formed by the expansion of the optic nerve, and is like a mirror at the bottom of the eye. This nerve comes from the brain, gets into the orbit through the foramen opticum, then passes to the sclerotic coat of the eye, which it perforates, and expands on the internal surface, forming what is called the retina, the internal coat of the eye. As the retina spreads out it grows thinner, and when it has reached as far as the anterior part of the vitreous humor it is scarcely perceptible, while at the point where it leaves the optic nerve it is about the twelfth part of an inch in thickness. The retina is the true organ of sight, and is the point or surface where, and upon which, all objects are formed; in the same ratio that this is impaired our vision is more or less defective.

To sum up the anatomy of the eye, there are three proper coats, the sclerotic, choroid, and retina. The rays of light pass through the transparent cornea, thence through the aqueous humor in the anterior chamber, the pupil which is formed by the iris, the posterior chamber of the aqueous humor behind the iris, the crystalline lens, and lastly, through the vitreous humor, and stops on the retina where the image or object is formed.

In order to understand the principles of sight it will become necessary to dip a little into the theory or principle of light.

Natural light is a matter thrown off from luminous bodies, such as the sun, moon, stars, &c.; it is also engendered by the ignition of various bodies which is called artificial light. The rays from any luminous body enters the eye and rests upon the retina, impressing that organ with a sense of light. The minuteness and inconceivable velocity with which light travels, and the facility with which it penetrates bodies, however dense, without changing its original properties, makes it the source of the most wonderful and astonishing phenomenon in the physical world.

The smallest stream that can be seen passing through the minutest opening or hole is called a ray, and as those rays always pass in a straight course, they are represented by mathematical lines. Each ray, as we generally see it, looks white, yet at the same time it is composed of seven different colors, called the seven primitive colors, each one of which is capable of being more or less refracted than another, and are generally arranged according to their refractibility—first red, second orange, third yellow, fourth green, fifth light blue, sixth indigo, and seventh violet or purple, which united form one ray or beam of white light, with which there appears to be

a window and look through it, all passers-by will appear as though walking on their heads; but by placing another globe in such a position as enables you to look through them, both the images will appear right side up. This experiment, in my opinion, explains the manner in which images are formed upside down on the bottom of the eye. But the natural inquiry must then be, how do we see things as they really are. In answer to this it is only necessary to say, that the bottom of the eye sees the top of the object, and the top of the eye the bottom of the object. If we see an image that is quite large, its shadow on the retina is reduced to a small point by the converging power of the lens. Professor Bell, in his calculations on this point, says: There is nothing more astonishing in the structure of the eye than the sensibility of the expanded nerves, as proved by the extent of changes or degrees of light which illuminate visible objects, or the great degree of light which the eye can bear, and the low degree of light at which objects are visible. Thus the proportion between the degrees of light illuminating an object by the sun and by the moon at any equal altitudes, is calculated at 90,000 to 1. Again, we see the sail of a windmill six feet in diameter, at the distance of 24,000 feet; the eye being supposed to be an inch in diameter, the posture of the sail at the bottom of the eye will be the eight thousandth part of an inch, which is the six hundred and sixty-sixth part of a line, and is about the sixty-sixth part of a common hair.

This shows what a small speck quite a large object makes on the retina. If a man is seen at the above distance, what a trifling shadow or impression he makes on the bottom of the eye; if we stand near a house we can only see a small portion of it, as the retina is not large enough to take in the entire object, while at a distance an object of much larger magnitude can be seen with ease.

The retina is so sensitive that images can be formed in very quick succession, and disappear as soon. If we see the wheel of a carriage turning quite fast, we are able to see each spoke separately, but if it is turning too fast for the image of the spokes to be separately formed on the retina, it has the appearance of being solid, for the image of one spoke cannot strike the retina and disappear before the image of another is there, consequently the impression of more than one is made at the same time; this compresses the rays and gives the solid appearance to the wheel.

The reason why some persons are near-sighted, is because the lens of the eye is too convex, causing too many of the rays to be refracted; in consequence of this convexity of the lens, the rays are brought to a focus before they reach the retina; but when the image is brought near enough, so that the focus hits the retina, the person will see more plainly than others. But in order to see they must bring the book or object so near as to be both disagreeable and inconvenient. To remedy this, concave glasses can be worn, which throws some of the rays outside of the eye, admitting less into it, thereby carrying the focus further back, and enabling them to see as well as those not so unfortunate. As they grow older, however, the lens grows flatter or less convex, consequently they can see better in advanced life than while young. As we grow old the lens flattens, until the focus would be formed, if possible, beyond the eye; hence we are obliged to resort to convex glasses, so that more rays may pass into the eye and on the retina, and there come to a focus.

All images that are formed on the retina must be applied to our minds before we can properly understand their effects. For instance, the first time we see any thing, as a flower or plant, we must be told what its name and use is, in order that we can properly understand it; if we are not told by others we adopt a name to suit ourselves, so that we may communicate our ideas in a proper manner; we say that we have seen a rose, but if we had never been told that it was a rose, we would then be left to describe it, by

calling into action in addition to sight some one or more of our other senses. We say that we have seen a beautiful flower growing on a bush, giving off an agreeable flavor; this description would be sufficient for us, but others would not know it for certain; but if we say we have seen a rose it is perfectly understood at once by all who had seen a rose and heard its name. By this it will be seen that the mind must understand and be in harmonious action with all the other senses in order that the work shall be complete as it regards mind and matter.

If we lose either one of our senses, all the others will increase. Persons who could once see well, and then become blind by accident or disease, find those faculties that were rather weak when the sight was good, now become exerted to a keener action, because there are more duties, and in a finer manner, for them to perform; in some the sense of feeling is so acute as nearly to supply the place of eyes; we will see blind persons going from place to place as correctly as those with perfect sight; they remember the touch or feel of every place where they have once been. There is a case recorded of a person being blind for a number of years, who was in the habit of walking about the city without difficulty, but who, on having his sight restored by some operation, would often get lost in the street, and in order to find his way home he would be obliged to shut his eyes and depend upon his feeling, when he would find his way correctly. I am acquainted with a very intelligent young lady who is blind herself, and a teacher in the asylum for the blind in this city; she talks of beautiful colors, green fields, and all things in regard to colors that enter our mind, and describes them in poetic effusions with as much vivacity and delight as though she had her eyes perfect; but if she could open her eyes suddenly it would be impossible for her to tell or distinguish one color from another, so that all things must be applied to the mind in one way or another in order to understand them.

The human eyes are so situated that an object can be seen directly in front; therefore the image falls on both retinas at the same time, and both carry the impression to the mind at the same moment. We see objects but faintly at our side, while quadrupeds in general have their eyes more on the side of the head, and can see only with one eye distinctly; some are even so much so, that when running fast they will strike against an object directly in front. Such animals always turn their head a little to one side in order to see their way clear. Those wild animals that are very timid, whose only protection is in their speed, have their eyes more on the side of the head than others, which enables them to see their enemy in any direction. The eyes of birds are far apart, and those of fishes are nearly on the side of the head. More might be said on this interesting subject, but enough has been said to give the reader a general idea of optics and the manner of seeing.

VOICE AND SPEECH.

The voice is a sound resulting from the action of certain organs; and speech is the modulation of voice principally produced by the action of the tongue, lips, and other parts of the mouth when acted upon by the mind.

It may be necessary to give a brief description of the principal parts that enter into the formation of voice and speech in order that the reader may more clearly understand this interesting subject.

The Larynx is a cartilaginous cavity, and is the principal instrument that generates voice and sound; the lungs and trachea, which have been described in the article on respiration, are the parts below which supply this cavity with air in the requisite proportions to produce the necessary volume of

sound to form the voice, and in the human species, under the direction of the will to assist in speech.

The Larynx is situated in the anterior and upper part of the neck, and forms that large projection in the fore part of the neck, just below the chin, and is formed of four cartilages, first the thyroid, which is the largest one, and is situated in front and just below the hyoid bone; second, two cricoid, which are in front and below the former; third, aratnoid, situated on the back part of the larynx; these form the sides of this cavity. The larynx is about one inch in diameter at its largest point, and a little more than an inch in length; it terminates in a slit or long and narrow opening, called the *rima glottis*, to cover which there is a valve called *epiglottis*, which closes up the passage into the larynx when we swallow or any thing passes into the stomach, but when the air passes in or out of the lungs, this valve opens, giving it free egress and ingress.

The cartilages that form the larynx are held together by small delicate muscles and ligaments which enables it to contract or expand as circumstances may require. The epiglottis, or valve, is a dense fibrous substance that, at all times, preserves its natural shape and situation; it is fastened on the fore and upper part of the larynx, and at the root of the tongue. These are the situations of the main organs of voice.

All animals having a proper respiratory apparatus have a voice, but not speech. To produce voice it is only necessary that air should be collected in any given quantity in a tube and forced out through a smaller orifice than the cavity that contains it. Thus we see the ox and other animals collecting in their vast lungs a great amount of air and then, by a sudden effort, throwing it out through the larynx producing a loud noise. The upper part of the larynx is larger in proportion in animals of this class than in man; in man the slit or opening is narrow, being only about two or three twelfths of an inch in width, while it is ten or eleven twelfths of an inch in length, and through this narrow slit all the air necessary to form the human voice must pass; but in inferior animals, this opening is more round and not so much under the control of the muscles and ligaments, therefore, the noise from them is generally more uniform than from man, as they are not able to contract or expand this cartilaginous cavity to the extent that man is. The larger this opening, the coarser will be the voice, hence we have in children and females a finer, or softer voice, as the opening in them is smaller; those having the most power over the muscles and ligaments that contract or expand the larynx, are capable of altering their voices to the greatest extent.

Some persons suppose that the apparatus that produces sound is like a stringed instrument; others think it is valvular, like the valves of a clarinet. Although the epiglottis is a valve and acts like a valve, yet I am not of the opinion that it performs the office of a valve in producing the various sounds that are necessary in order to perfect speech. We cannot speak a word when this passage is closed, but on the contrary, we can change our voice and speak a number of words while it remains open. When air is passing in or out of the lungs this valve must be open. There cannot be much doubt but it is always up except when we swallow, and then it must close to prevent any substance from passing into the lungs. This instrument that produces voice or sound cannot act like a stringed instrument, for the ligaments and muscles are not always tense, nor in a state of vibration; although some person's voice will shake and gingle like tight drawn wires, yet this appears to be a habit or disease rather than a natural effect. Richerand beautifully remarks: "We are to consider the larynx as an instrument combining the advantage and exhibiting the double mechanism of a wind and stringed instrument; it is on this account that it surpasses all musical instruments by the extent, the proportion, and above all, by the inexhaustable variety of its effects. There is no one who has heard a solo at a concert on the French

horn by an able performer, but has been struck with the resemblance of the effect of this instrument to the human voice; it is because the vibratory body at the mouth-piece of the instrument is alive; because the lips like the sides of the glottis, are moveable, the opening of the mouth dilates and contracts and at the same time its edges are relaxed or stiffened by the contraction of the muscles of the lips."

Birds that fly high make a very sharp and loud noise, capable of being heard at a great distance. Man's voice is strong compared to many animals in proportion to the lung with his body. The strength of the voice depends somewhat on the state of the stomach. No person's voice is clear and strong immediately after a heavy meal, therefore, those who intend speaking or singing in public, should not fill their stomachs just before performing such duty. The voice is sometimes changed from its grave or acute sound by habit, or circumstances, and by going from one country to another. We talk without being conscious of it; we sound and imitate the peculiar accent common to our new abode, and without much, if any, effort on our part; and again some persons, by habit, get into the uncouth way of allowing the sound that comes from the larynx to pass through the nose, giving a disagreeable nasal twang to the voice. We will now leave this part of our subject and proceed with a few remarks on speech.

Speech, in addition to voice, can only be performed by mankind, because they have added to the respiratory organs the full command of the muscles about the throat, tongue, and lips, which are all under the sovereign control of the will. Speech, by habit, can be varied or improved to almost any extent, and after possession may, by the loss of hearing, become entirely extinct. When a child first begins to talk, its words are very imperfect; but by observation and their imitative faculties, they soon articulate correctly. It appears to be only the want of judgment that hinders the child from speaking when first born as they have all the organs of speech in as great perfection as an adult. As a child is constantly making the effort to speak, and by that means is exercising the muscles that have control over, or rather assist in producing speech, by the action of those muscles, which are situated about the throat, or in fact, all the vocal organs which unite in their action to so arrange the volume of sound, as when conveyed to our own or the ears of others and from them to the mind to form the impression of the workings of the mind. In just the same proportion that our organs of speech are injured, either by accident or the loss of some other faculty, our speech is imperfect; it may be rendered unintelligible or so low as to be heard with difficulty. This is called a whisper, and it may be increased so loud as to be very unpleasant to hear, yet all this is under the control of the will.

There are certain letters which are spoken with ease, and are the first that a child learns to pronounce, called vowels; their articulation is so easy that but little more seems necessary than to open the mouth for them to come out nearly perfect; there are other letters, called consonants, the pronunciation of which is more difficult, hence those words containing the most vowels are the easiest and soonest learned by a child, as *papa*, *mamma*, &c.; but much depends in perfecting speech on a perfect set of teeth. But as this subject belongs more directly to the elocutionist, we will pursue it no farther.

Singing is in a great measure produced by an alteration in the shape of the larynx by means of the muscles. If a singer wishes to sound a high note he must raise his chin and open his mouth; in that way he compresses the larynx so that the air must be forced uninterruptedly through a small aperture. But in order to produce the low bass notes, the neck must be shortened and the mouth nearly or quite closed, so that the sound appears as though it was in the trachea or vibrated through the parietes of the chest. It is not necessary that speech should be connected with voice to produce the peculiar sound in singing, for in singing it becomes necessary to modu-

late the voice somewhat differently from what is requisite in speech. Some persons are quite unable to sing; they cannot modulate their voice by reason of not having that control over the larynx which enables them to give it the required shape or form; if the faculty is not planted in them by nature, it is doubtful if it can be acquired; a natural and fine voice is one of the greatest gifts bestowed by nature on a favored few.

The sound of a sweet voice, when excited by the stirring passions of the mind, has held the judge upon the bench without the power, for a time, of uttering that sentence which the law directed. The savage of the forest has looked with astonishment and quailed under the musical sound of a human voice when language could not have reached his heart; it subdues the most obdurate, awakens the finest feelings of compassion, exhilarates and buoys up the mind to look beyond the turmoils of this life; it lights us on our path to virtue and happiness, and paints in glowing colors the downward course of vice and immorality.

There is another phenomenon in speech but few possess: that is ventriloquism. The exact manner in which this singular phenomenon is produced I have been unable to discover, although having frequent opportunity for observation. The secret of the power I believe has not been fully known to those that have possessed it. The celebrated ventriloquist, Mr. Nichols, with whom I was very intimate, gave me every opportunity for observation that could be wished. I have stood by his side when he would throw his voice at a distance, or hold a dialogue apparently with three or four different persons at the same time. He had the power of expanding his chest five or six inches in circumference, and at the same time breathe perfectly natural, and as he informed me, he could remain in that situation for one or two hours at a time with perfect ease. It appeared as though the chest was entirely independent of any action on the part of the lungs, as it could be enlarged without any visible effort to inflate the lungs by inhaling any extra quantity of atmosphere. On one occasion, I went with him to a tailor's to get a coat that was made for him; when it came to be put on it was found to be four or five inches too small. The tailor thought he had made some mistake; but after feeling, brushing, and measuring for some time, to his great surprise, it was found to be an exact fit. When this gentleman would throw his voice to a distance he would use the effort to speak without allowing his voice to be modded in the larynx although his mouth would be open: as he says himself, he makes the attempt to speak without at the same time intending naturally so to do. It appears to me that the unnatural expansion of his chest gave to him the unnatural power of speech, as there did not appear to be any other arrangement about his organs of speech different from other men. There may have been some extra muscles about his throat which of course could not be discovered.

PHRENOLOGY.

BY O. S. FOWLER, PRACTICAL PHRENOLOGIST.

Man, the lord of creation, is the noblest work of God, within our knowledge. As an animal merely—in physical structure, in the play and perfection of bones, joints, muscles, nerves, &c., in capacity for accomplishing and enduring; in length of life, in physical strength, in vitality and animal power, in ease and perfection of motion; in respiration, digestion, form, beauty, range and perfection of function, and in every quality appertaining to the animal kingdom, whether considered individually or collectively—he excels them all—he stands alone and above them all, combining the excellencies of them all augmented, but marred with the defects and blemishes of none.

But, however perfect man is as an animal merely, he is infinitely more so as a mental and a moral being. Indeed, it is to furnish an agent and servant of the mind mainly, that the body was created. Beautiful, inimitably bountiful and perfect in action as in the constitution of man's body—the heart, blood, stomach, muscles, nerves, limbs, head, &c., how infinitely more so the faculties of affection, acquisition, self-protection, mechanism, caution, will, decision, justice, worship, hope, kindness, memory, communication, reason! What can equal in beauty and perfection of design, in skill of execution, or in perfection of operation or the production of enjoyment, this wonderful arrangement of the intellectual and the moral faculties and affections of man? To say that man, physically, mentally, and in his capacity for enjoyment stands completely at the head of creation—at least of that part of it with which we are acquainted—is but to utter a truism to which every reflecting mind cannot but assent. It is in the creation of man that

“The WHOLE Deity is known.”

In him centres the very perfection of Infinite Wisdom, Infinite power, and Infinite Beneficence.

Man being thus exalted in nature, sphere, and function, therefore,

“The GREATEST study of mankind is man.”

Would we see the most perfect specimens of the adaptation of ways and means to ends that the universe itself affords, behold them in man. Would we witness the most perfect specimens of physical mechanism to be found under the sun, as well as the most numerous, behold them in man. Would we glut to satiety every element of our natures, we need only study ourselves, that compendium of nature. Would we study the laws of nature, combined in their greatest number and variety, turn again to man. And would we learn how to live aright, how to fulfil the great end of our being, how to obviate causes of suffering, and supplant them with causes of unalloyed happiness, study the nature of man; for that nature tells him exactly how to be perfectly happy, and shows him from what violations spring “all the ills that flesh is heir to.”

But how shall man be studied? Abstractly, or the mind by itself and the

body by itself? Never: but every part along with every other. The great error with past ages—an error not wholly done away in this age—is, that mind has been studied metaphysically, whereas it should be studied physically. As we know nothing whatever of or about mind except by means of its physical manifestations, so it must of course be studied through this channel. And as the brain is considered, on all hands, the organ of the mind, or the special instrument through which the mind is manifested and exercised, it should be studied, it can be studied, scientifically by means of certain forms, conditions, and developements of the brain.

Within the last half century, a new scientific star has arisen upon the world of mind—that star is *Phrenology*: (derived from the two Greek words “phren,” which signifies mind, and “logos,” discourse; the two together being employed to designate the science of mind, or its laws and phenomena as manifested and indicated through the brain). And as the noblest part of creation was brought forth last, so this last star of science—of the science of mind—completely eclipses all that have ever risen before it, as to both beauty and utility. This science points out those connexions and relations which exist between the conditions and developements of the brain, and the manifestations of the mind, discovering each from an observation of the other. Its one distinctive characteristic doctrine is, that each class of mental operations is manifested by means of a given portion of brain, called an organ, the size of which is the measure of the power of function. Thus, the benevolent feeling is manifested and indicated by means of brain in the frontal part of the top of the head, and in proportion to the developement of brain there, will be one’s spontaneous flow of kind obliging feeling; and so of every other quality of mind.

Its classification of the mental faculties also furnishes a complete system of intellectual and moral philosophy, by resolving all the operations of the human mind, whether simple or complex, back into the primary elements or faculties, the exercise of which produced them.

That these phrenological relations either *do* or *do not* exist, and therefore, that phrenology is either fundamentally true or else untrue, is a self evident proposition; and by applying to it, as we proceed, the following principles, which are the proper tests and touchstones of the truth of any and every science, the truth of phrenology, or its want of it, can be speedily and certainly ascertained.

Axiom 1. If phrenology be fundamentally true, it forms an important part of this great system of things called the universe, developing those laws and unfolding those principles, physical, intellectual, and moral, in accordance with which “God created man,” and also the whole range of animated beings. Consequently, as every portion of the universe originated in the same Divine Mind, and as each part of it is adapted to every other portion, phrenology, if true, is adapted to, and must, therefore, perfectly harmonize with every other fact and principle in nature with which it is capable of being compared.

But if it be erroneous, then, since God is the author of nature, and man of phrenology, the two will clash with each other, because man could never have devised a system of facts and principles capable of chiming in with the laws and operations of nature. Truth will always harmonize with truth, but with truth *only*. Error cannot tally with truth, nor with error. Hence, by comparing phrenology with the known principles and operations of nature, its truth or errorousness can be ascertained from its harmonizing with them, or being in opposition to them.

2. If true, its origin is Divine, and like every other portion of the Creator’s works, its own inherent beauty, simplicity, perfection, and naivete, will stamp it with the Divine impress; but if not true, it is *human* in its origin, and, therefore, necessarily a bundle of imperfections and absurdities throughout.

3. If true, it develops the constitutional principles, and analyses all the phenomena of the human mind, beautifully unravelling the whole web of thought and feeling, and fully explaining the vast and entire range of the mental manifestations, besides unfolding the laws of physiology; but if untrue, its fallacy can easily be detected by its inability to accomplish these ends. To effect these otherwise unattainable objects is "*par excellence*," the peculiar prerogative of phrenology; and its success or failure here, is the *certain* criterion of its truth or erroneousness.

4. But if phrenology is partly true and partly false, if the Deity made one part and man imagined the balance, then, "like a house divided against itself," its own inherent absurdities and self-contradictions will constitute its own refutation.

DEFINITION OF A FACULTY.

A mental faculty is a primary power of the mind which exercises one, and but one, distinct and homogeneous class of functions, having for their object some specific end in man's physical or mental constitution, such as love of offspring, memory of occurrences, appetite for food, &c., and which is exercised by means of a given portion of the brain, called its organ.

The following are a few of the facts and arguments, briefly stated, which establish the truth of phrenology:

I. *The Brain is the organ of the Mind, or the Physical Instrument of thought and feeling.*

1st. That there exist a most infinite connexion and relation between the thinking feeling principle of man and his body, is a matter of observation and sensation; the state of each reciprocally affecting that of the other. That this connexion must be manifested either directly through the medium of the body as a whole, or else by means of some particular portion of it, is also self-evident. But every other part and organ, except the brain, is exclusively occupied in performing other functions than the mental, while the location and structure of the brain, its connection by means of the nerves with every portion of the system, and also every thing appertaining to it, point it out as the "dome of thought," "the palace of the soul."

2d. The blood is the great medium for the resupply of exhausted vital energy, it being most abundant wherever the greatest resupply of this energy is required. Now the exercise of mind besides being the chief end of man's existence in this world, and a source of much more intense pleasure and pain than the exercise of any other department of his nature, causes a far greater expenditure of the vital energies than the exercise of the latter. If, therefore, the brain were the instrument of the mind, it would require much more blood in proportion to its size than any other portion of the body. Accordingly, we find that from five to twenty times more blood goes to the brain in proportion to its size, than to any other equally large portion of the system.

3rd. A slight pressure on the brain suspends the mental operations, rendering the patient unconscious of any thing; and by the removal of this pressure, the mental powers are instantly restored, while the effect cannot be produced by pressing upon any other portion of the system.

4th. Injuries and morbid states of the brain, plainly affect the operations of the mind, as we shall see hereafter, yet this effect cannot be produced by wounding or inflaming any other portion of the body, except by sympathetically affecting the brain.

Corolla 1. A plain inference deducible from this proposition is that there can be no existence, no manifestation of the *mind*, without a corresponding exercise and action of the *brain*, and, *vice versa*, that every action of the brain

must produce an exercise of the mind, every change and condition of each producing a corresponding affection of the other.

2. All the operations of nature are uniform throughout. If a particular organ exercise a *single* function of a given class, it exercises every function of that class. The eye sees, and does all the seeing, and nothing else; so of the stomach, the lungs, and every organ and function of the body, and indeed of universal nature. Consequently, if the brain exercise a *single* function of the mind, if a single thought or emotion be manifested through the medium of the brain, then is every emotion, every thought, every mental operation manifested by means of the same brain. Either the relation between the two is perfect, complete, and entire throughout all their most minute phenomena, or else there is no relation, no mutual exercise, no dependence whatever.

II. *The Mind consists of a PLURALITY of independent faculties or powers*, each of which exercises a distinct class of functions.

Since our design is to show what phrenology is, rather than to prove its truth, and since fully to establish this fundamental proposition would require more space than we can devote to it, we will only state briefly the facts and arguments which support it.

1st. A plurality of the mental powers would allow a much greater variety and perfection of the mental operations than could be attained if the mind were a single power.

2d. If the mind were a single power, it could be doing only one thing at the same time; but if it be a compound of several powers, each could be in simultaneous action. Our own consciousness assures us that we can attend to more things than one at a time—that we can be looking and thinking, walking and talking, feeling and acting, &c., all simultaneously.

3d. If the mind were a single faculty, it must necessarily be equally asleep or awake upon all subjects at a given instant, which would preclude the possibility of dreaming; but if composed of several, one might be partially active, and another dormant, at the same time, which would produce dreaming.

4th. In case the mind were a single power, when wearied by one kind of action, it could no more obtain rest by turning to something else, than a man who had tired himself out by walking east, could rest himself by walking north. But the mind is relieved by changing its studies, pursuits, &c., and therefore consists of a variety of powers, which, by acting in turn, spell each other, and thus rest one another.

5th. Different kinds of memory, or a retentive recollection of countenances and a poor one of names, or a good memory of ideas, and an indifferent one of details, or an accurate one of places and a deficient one of colors, establish the same point; because, if all kinds of memory were performed by one and the same power, it would be equally retentive of every thing.

6th. Insane persons are often deranged only upon a single subject, while they are sane upon every other. Now if the mind were a single power, and the brain a unity, sanity upon one subject, and insanity upon another, could not possibly coexist; whereas, it being a plurality of powers, and the brain, of organs, a given organ, and with it its faculty, can be deranged, while the others remain, and often are healthy. See axiom 3.

7th. If the mind were a single faculty, it would be equally powerful when applied to every thing, in which case, partial genius, or a talent for one thing and not for another, could not exist together, but every one would be equally gifted with mathematical talents, and poetical talents, and mechanical talents, and so of every species of intellect; but if the mind were a plurality of powers, one power might be, and would be likely to be, weak, and an-

other strong, which would produce just that diversity of disposition and talent which actually exist among men. See axioms 1 and 3.

I will relate a single fact illustrating this point, which occurred at a public test-examination in Fairhaven, Massachusetts, December, 1837, before an audience of over two hundred persons. It being a blindfold test-examination, some anti-phrenologists had gone several miles to procure for the occasion a mathematical fool. After having examined Captain Bennet, and ascribed to him superior talents and moral worth, this fool was set up as a contrast. At first, I hesitated, saying, "you must indeed excuse me from proceeding." "Go on," "go on," was the unanimous response. I replied, "Well, if I must, I must, but I tell you if I do, I shall make a striking hit or a great mistake. First, then, his reasoning powers are small, so that he cannot think, or reason, or understand any thing. He is a natural fool, and destitute of the moral organs at that. Secondly, he has large calculation. He delights and excels in *reckoning* figures in his head."

Here Dr. Sawyer interrupted, by asking "how he could be a fool, and yet excel in arithmetic. This is contrary to reason." I replied, "Reasonable or unreasonable, it is the fact. I appeal to those who know him if it is not." "It's so," "it's the fact," responded several who knew him. "He is a perfect master of arithmetic, and will sit up half the night propounding and solving sums, and takes the greatest pleasure therein, but doesn't know enough to take care of himself," said one who knew him well. I replied, "You see, doctor, what the fact is. Now, will you have the goodness to explain how this is, for you are under just as much obligation to do so as I am." It was a poser. He gave it up. "Now, sir," said I, "I will explain this matter. The mind consists of a plurality of independent faculties, each of which is exercised by means of particular portions of the brain, as its organ. In this case, causality, which thinks, is small; hence he is a fool; but calculation, which is independent of it, and reckons figures, is very large; and hence he is great in figures."

III. *The brain consists of as many different portions called organs, as the mind does of faculties.*

To suppose that the mind consists of a plurality of faculties, and yet that each power uses the whole brain in succession, is a palpable absurdity. Throughout all the operations of nature, we find a distinct instrument or organ employed to exercise every class of functions, and also every distinct class of functions is exercised by its particular organ. Thus, instead of our seeing, and hearing, and tasting, and smelling, and feeling, all by means of one and the same apparatus, each is performed separately, or by its own appropriate instrument. This arrangement is universal, and the plain inference is, that the same is true of each of the other mental powers, including the organs of the brain.

These two last propositions might have been stated in one, the truth of each being inseparable from, and established by, that of the other, and the two together constituting the very essence and substance—both the foundation and the superstructure—of phrenology. Establish either, and you therein and thereby establish the other, and with it the truth of phrenological science; overthrow either, and you thereby overthrow the other, burying the entire science in the fall.

If the brain be a unity, then the pathological or diseased condition of any portion of it, must necessarily affect the brain as a whole, and prove injurious to the mind as a whole, affecting equally its every function and operation; but in case the brain is an assemblage of parts or organs, it is plain that the injury of any one of them, will affect that particular class of mental functions which is exercised thereby, and that only. This class of facts is of that positive, "ad hominem" character which will at once establish or refute the doctrines of phrenology, and the force of which no candid or re-

flecting mind can gainsay or resist. See *Am. Phren. Jour.* vol. ii., No. 11, p. 508, and also *P. P.* p. 18 and 19., and the author's reply to Dr. Hamilton.

IV. *These faculties are possessed originally in different degrees of power by different individuals, and also by the same individual.* See the account of the mathematical fool above, *P. P.* p. 20—24, where this proposition is discussed. See also the endless diversity of talent and disposition existing among men.

V. *Other conditions being equal, the size of the brain, and of each organ, is the measure of their power of function.*

Though this proposition is an important and a fundamental one, yet it is not my purpose to discuss it here. I will just observe, that since the brain is composed of a plurality of distinct organs, as just shown, each of which exercises a distinct class of functions, the supply of blood to these several organs is proportionate to their volume and exercise combined. In other words, the more you exercise the feelings of benevolence, of cautiousness, or causality, for example, the more will you exercise the organs of benevolence, or cautiousness, or causality, and this exercise will cause an increased flow of blood to these organs, which blood is freighted with matter which it deposits wherever it goes, in proportion to its abundance, and this causes an enlargement of the organs proportionate to the exercise of their respective faculties. This principle of increase by exercise, and decrease by inaction, is familiar in its application to the hands of the laborer, sailor, &c., to the foot of the expert dancer and the pedestrian, to the chest of the rower, the right hand compared with the left, &c. And since the brain is governed by this same physiological law, why should not its effect be the same upon the organs of the brain? It is for the opponents of this science to show that this is not the case.

PATHOLOGICAL FACTS.

While lecturing on and practising phrenology in the city of New-York. December 27, 1836, Dr. Howard, who then lived in Carmine-street, called on me, and stated that the evening before he had been called in great haste to visit a lady who was taken with a most violent pain in the head, which was so severe as in fifteen minutes entirely to prostrate her, producing fainting. When brought to, she had forgotten the names of every person and thing around her, and almost entirely lost the use of words, not because she could not articulate them, but because she could not remember or think of them. She could not mention the name of her own husband or children, or any article she wanted, nor convey her ideas by words, yet understood all that was said to her, and possessed every other kind of memory unimpaired. "And where was this pain located," I eagerly inquired. "That is for you to say," said he. "If phrenology is true, you ought to be able to tell where it is." "Then it is located over her eyes," said I. He replied, "that is the place." The pain was seated there only. In other words, her phrenological organ of language had become greatly disordered, and the faculty of language was the only mental power that suffered injury, all the others remaining unimpaired.

Dr. Miller, of Washington, District of Columbia, related to the author a similar case, which occurred in or near that city, accompanied by a pain in the same portion of the head, and there only.

While examining professionally the head of a lawyer, attorney general of one of the New England states, observing an unusual and feverish heat in his forehead, and particularly in the organs of the perceptive faculties, I observed, "Sir, the brain in your forehead is highly inflamed; you have been studying or thinking too hard, or doing too much business of some kind,

and if you do not stop soon, you will be either a dead man or a crazy one." He started upon his feet as if electrified, exclaiming, "Who has been telling you about me?" "No one, sir." "But some one has been telling you." "Upon my honor and my conscience, sir, I neither know you nor your occupation, nor condition in life, nor one single thing about you, except what I infer from your phrenological developments," said I, pointing out to him the preternatural heat of his forehead. He requested me to proceed, and at the close of the examination, stated that for several weeks he had been dreadfully afflicted with the most violent and intolerable pain in his forehead, particularly the lower portion, and on that account had requested my attendance, that his memory, which, up to that time, had been remarkably retentive, had failed him, and his intellectual faculties also sustained much injury, and that all this was brought on at a session of the court, in which his intellectual powers were employed to their utmost stretch of exertion for several days and nights in succession, upon very heavy cases, both for the state and for individuals. He was sixty years of age, had a powerful constitution, a most active temperament, and very large perceptive faculties, which the inflammation had rendered redder than the other portions of his forehead.

After stating this class of facts at a lecture in Easton, Maryland, Mr. J. H. Harris remarked that he now could not help believing in phrenology, because he had *experienced* its truth. He said that at one time, while extensively engaged in superintending a great amount and variety of business, including building, he was repeatedly seized with a most intense pain over his eyes, which was so powerful, that to obtain relief he would have held his head still to have had it bored into, and that, whenever this pain seized him, he forgot every thing, and would drop the sentence he was speaking, unable to think of a single word or thing until the paroxysm abated.

A Mr. C., of Boston, is subject to spells of violent pain in his forehead and, there only (the seat of the intellectual organs), which is accompanied with an irrepressible desire to read, think, study, write, &c. He often sits up whole nights indulging this intellectual mania. Nothing but sleep will relieve him, yet he is unwilling to seek rest because of the delight experienced in this exercise of mind, even though fully aware that he thereby aggravates the disease.

At Carlisle, in June, 1837, I pointed out this same preternatural heat in the forehead of a student, who, entering his class poorly prepared, had overdone his intellectual organs. He had been compelled to suspend his studies on account of the pain in his forehead, and the morbid action of his intellectual powers.

Eventuality. In April, 1837, Dr. Carpenter, of Pottsville, Pennsylvania, related to the writer the following: One of his patients fell from a horse, striking the centre of his forehead against the corner of a rock, on which portions of brain were found. I have seen the scar, and know that it was *eventuality* that was injured. As Dr. C. entered the room, the patient recognised him, as he did each of his neighbors, but he had forgotten every fact and event, and them only. He asked what was the matter, and as soon as he was told, forgot, and asked again. To use Dr. C.'s expression, "fifty times over he asked what was the matter, and as soon as he was told, forgot, and asked again." He forgot that his brother was coming that day from a distance to visit him, and that he was then on his way to meet him. Every event was to him as though it was not; yet all his other mental powers remained unimpaired. When depletion was proposed, he objected, and assigned his reasons, showing that his reasoning faculties were uninjured. After the brain had been re-supplied, he recovered, to a considerable extent, his memory of facts. This accident made him a believer in phrenology.

Dr. Ramsey, of Bloomsfield, Columbia county, Pennsylvania, reported

the following case as having occurred in his practice: About four years since, a patient of his, by his horse becoming frightened, was driven with great violence against a fence, the centre of his forehead striking against the corner of a rail. He recognised the Doctor as he entered, and asked him what all this fuss was about. As soon as Dr. R. had told him, he forgot, and asked again and again, for twenty times in succession, and to this day he has not the slightest recollection of this most important event of his life, except the mere fact that the horses were frightened.

Another case analogous to this, and affecting eventuality, was narrated to the author by the Rev. S. G. Callahan, an Episcopal clergyman and teacher of high intellectual and moral standing, in Laurel, Delaware. About twelve years ago he was intimately acquainted with a Dr. Thomas Freeman, surgeon on board an English man-of-war, who, in an action with the Dutch, received a blow from a rope with a knot in it, which broke in the skull in the centre of his forehead. "Here," said he, putting his finger upon the organ of eventuality, "which produced a cavity resembling the inside of a section of the larger end of a hen's egg." The accident caused a loss of memory of facts only, which caused his dismissal on half pay for life, while every other power remained unimpaired. Thus, if he went for wood, he was as likely to get any thing else, or nothing at all, as what he went for. Being employed to construct a vat for coloring broadcloths, he constructed every thing right, his causality and constructiveness remaining uninjured, but when he came to the chemical process of dyeing, with which he was as familiar as with his alphabet, he failed repeatedly, till they were compelled to employ another dyer, who pointed out the omissions which caused his failures. Although the doctor was an excellent chemist, and understood every part of the operation, yet he would omit one thing in one experiment, and another in another, and thus spoil every attempt. He could seldom succeed in any chemical experiment, though passionately fond of them, because of these omissions; and yet, said my informant, start him on a train of thought, and he reasoned as clearly, and logically, and powerfully as almost any one I ever heard. Now observe, that the only organ injured was eventuality, and this was the only faculty impaired.

Robt. McFarland, a tavernkeeper, who, in 1837, lived in Carlisle, Pennsylvania, south of the courthouse, in consequence of a fall when about sixteen years old, had a deposition of watery matter which finally settled in the centre of his forehead, forming a sack between the skull and skin, which remained there for several years, until it became very painful, at last intolerably so, compelling him to have the sack removed, and the decayed portion of the skull on which it had formed, scraped twice a day for twenty days in succession, by which the disease was arrested. Before his fall, his memory of circumstances, what he read, saw, &c., was so excellent that he was often referred to. This kind of memory, and this only, was destroyed by the disease. On this account he called on me for an examination, but did not state his object, waiting to see if I would detect it. On examining his forehead, I told him that his memory of faces was among the best that I had ever seen, but that I observed a scar in the centre of his forehead, where memory of facts is located, and that if the wound which caused it affected the brain there, his memory of incidents, every-day occurrences, what he read, and saw, and heard, &c., had been impaired. "That's a fact," said he. "If I see a man who called on me ten years ago, I know him instantly; but if a customer wants any thing, and another calls for something else before I have waited on the first, I forget the first, and thus often give offence; but I can't help it. And it's of no use for me to read 'any thing; I forget it immediately.'"

The intense pain caused by the dropsical deposit, shows an affection, long

continued and severe, of the brain beneath it, and the location of the scar fixes it on eventuality, which was the only faculty impaired.

A Mr. Camp, of New-Haven, Connecticut, by the bursting of a gun, had the end of the barrel driven an inch or more into his organ of eventuality, scattering the brain upon the stone wall against which he was leaning. By this accident, his memory of facts was so much impaired, that Lawyer Stoddard said he was frequently compelled, on this account, to suspend or give up his suits. I have often seen the scar, and also been a witness to his miserably defective memory of facts, appointments, &c.

Mr. Alex. Dalby, potter, Wilmington, Delaware, is another example of the injury of the organ, and with it, of the faculty of eventuality, caused by falling from a horse, and striking his forehead upon a stone, and Dr. D., of Milton, Penn., furnishes another.

Tune. Dr. Miller, of Washington, District of Columbia, reports the following: A lad was kicked by a horse, "the point of the shoe striking him under the left superciliary ridge, outer angle, fracturing the orbital plate, and forcing the spicula of bone upwards and outwards, on the dura mater, which was wounded by them." As the wound was three-fourths of an inch deep, and penetrated the head in the direction of tune, reaching the borders of that organ, but not penetrating it, it would of course highly inflame it, which would produce a disposition to sing. This result followed. When the boy came to, he began to sing, and sang most when the wound was most inflamed. Both before and after this occurrence, he had never been known to sing, but now, lying apparently at the point of death, he would break out singing songs, and, to use his mother's expression, "did nothing but sing." On account of his singing propensity, Dr. M. sent for Dr. Sewall, the anti-phrenologist, and Dr. Lovell, then president of the Washington Phrenological Society, who reminded Dr. S. that this case went to prove phrenology, and yet he says no cases analogous to the above have ever been known to occur. His memory of such facts must be rather short.

A similar case occurred about nineteen years ago, at Young's factory, on the Brandywine, five miles above Washington, Delaware, and was reported by Dr. Jacques, of W., attending physician. An Irishman, named Robert Hunter, having charged a rock with a blast which did not ignite, swore that he would make her go off, at the same time jamming his iron crowbar down among the powder. It struck fire, and blew up. but did not split the rock. The crowbar was sent no one knows where, both hands were torn off, and the charge, coming up in a body, struck his head along the superciliary ridge, cutting a furrow in the skull, and carrying away portions of the dura mater and brain. It took its course along the borders of tune, but did not disorganise it. From his friends, Mr. and Mrs. White, at whose house he boarded and died, I learned its precise location, viz., along the superciliary ridge, externally of it. It also carried away a portion of the superorbital plate, and terminated near mirthfulness.

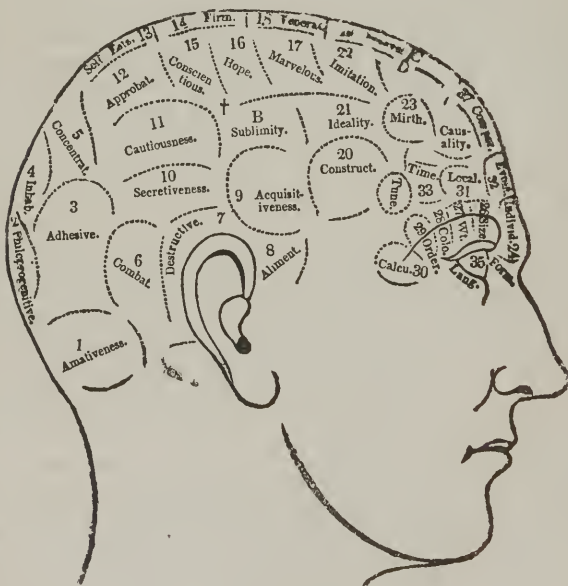
In fifteen minutes after he was taken to the house of Mr. W., "he fell to singing songs," and continued singing almost without interruption till his death, which occurred nine days after. I took down from the lips of Mrs. W. the following description of his singing propensity. "He sung the whole time after he was blown up till he died. He did not stop one hour, put it all together. Mr. W. began to read the Bible to him, but he broke out singing and stopped him. He was very musical, much more so than when he was of himself. I thought this very strange. It was not a quarter of an hour after he was brought in before he began to sing. He sung all the time till he died, and stopped only when some one went in to see him, and then began again directly. His principal song was Erin go bragh, and he sung it with a better tune than I ever heard it before or since. It beat all how musical his voice was. He sung very loud, and seemed to take a

great deal of pleasure in it." Dr. Jacques observed that what struck him most forcibly was to hear him sing with so much feeling, and pathos, and estacy. Several others bore their testimony to the same point.

A second evidence of the truth of this proposition is, that great men always have large heads. The brains of Napoleon and Cuvier were the largest ever weighed. Byron's was nearly as heavy. Webster's is twenty-four and a half inches in circumference, which is the largest class of heads. Clay's head is large; so is Van Buren's. Franklin's was very large, and Hamilton wore an immense hat, one that would slip right over a 7 $\frac{3}{4}$ inch head and fall upon the shoulders. Washington's head was very large; so was Cromwell's, Bacon's, and a host of others too numerous to mention. Indeed, this law of phrenology, that, other things being equal, size is the measure of power, holds good of every thing, and is a standard test of power. Why not, then, in relation to the organs of the brain.

It should be added, that children resemble their parents not only in character, but in looks, size, shape of body and head, and of course in the relative size of their phrenological developments.

ANALYSIS OF THE FACULTIES AND LOCATION OF THEIR ORGANS.



DOMESTIC PROPENSITIES.

1. *Amativeness*.—Reciprocal attachment and love of the sexes as such; with adhesiveness, connubial love and the matrimonial relations. *Abuses*: licentiousness, obscenity, &c.

2. *Philoprogenitiveness*.—Parental love; attachment to one's own offspring; love of children generally, pet animals, &c. *Abuses*: spoiling children by excessive indulgence; idolizing and pampering them, &c.

3. *Adhesiveness*.—Friendship; sociability; fondness for society; susceptibility of forming attachments; inclination to love and desire to be loved; propensity to associate together in families and neighborhoods. *Abuses*: too great fondness for company indiscriminately; grieving excessively at the loss of friends, &c.

4. *Inhabitiveness*.—Love of home and country as such; attachment to the place where one has lived; unwillingness to change it; desire to locate and remain permanently in one habitation; patriotism.

4. *Concentrativeness*.—Unity and continuity of thought and feeling: power of connected and concentrated application to one and but one thing at a time. *Abuses*: prolixity; tedious amplification of the feelings and mental operations, and inability to change one's occupation or divert one's feelings.

SELFISH PROPENSITIES.

6. *Combativeness*.—Self-protection; defence; resistance; defiance; resentment; spirit of opposition; determination; boldness; resolution: willingness to encounter; it originates the feeling implied in the phrase "let me and mine alone." *Abuses*: pugnacity; a quick fiery temper; a contrary, faultfinding, contentious disposition, &c.

7. *Destructiveness*.—Executiveness; indignation; sternness; harshness; a pain-causing, retaliating, exterminating disposition; hatred and bitterness of feeling. *Abuses*: rage; revenge; malice, premeditated animosity; wars; cruelty; malignity murder, &c.

8. *Alimentiveness*.—Appetite; hunger; desire for nutrition; gustatory enjoyment. *Abuses*: gluttony; gormandising; living merely to eat and drink; drunkenness—though this last vice depends much on the temperament, habits, &c. of the individual.

9. *Acquisitiveness*.—Love of possessing and acquiring property as such, the feeling of mine and thine—of claim and rightful possession; an economical, saving, frugal disposition, which is pained by seeing waste and extravagance.

10. *Secretiveness*.—Policy; management; evasion; cunning; acting under assumed aspects, and disguising one's real sentiments and purposes. *Abuses*: hypocrisy; deceit; lying; duplicity, &c.

SELFISH SENTIMENTS.

11. *Cautiousness*.—Provision against want and danger, solicitude about consequences, fear, care, anxiety, taking precautionary measures, fleeing from foreseen evils, &c. *Abuses*: procrastination, irresolution, timidity, cowardice; melancholy, want of promptness and enterprise.

12. *Approbateness*.—Regard for character and reputation, desire for a "good name" and to be esteemed, love of praise, popularity, fame and notoriety, pride of character, feeling of shame, ability to distinguish one's self. *Abuses*: vanity, following the fashions at all hazards, extravagantly decorating the person, making too great display and show, artificial manners, formal politeness, &c.

13. *Self-esteem*.—Self-respect, love of freedom, liberty, and independence; self-confidence, self complacency and satisfaction, high sense of honor, love of power, nobleness, dignity, a high-toned manly feeling which despises meanness and commands respect. *Abuses*: pride, egotism, swaggering pretensions, haughtiness, an aristocratic domineering spirit, &c.

14. *Firmness*.—Decision of character, stability, fixedness of purpose, opinion, &c.; perseverance, unwillingness to change. *Abuses*: obstinacy; wilfulness, a blind adherence to present opinions and in opposition to reason.

MORAL SENTIMENTS.

15. *Conscientiousness*.—Moral principle, integrity, sense of justice, regard for duty, perception of right and a feeling of wrong as such, and that right should be rewarded and wrong punished, sense of moral accountability, of guilt and incumbrance, love of truth, penitence for sin, disposition to reform, gratitude for favors, desire of moral purity and blamelessness of life. *Abuses*: excessive scrupulousness, self-condemnation, making too little allowance for the faults and follies of mankind.

16. *Hope*.—Anticipation, expectation of future happiness and success, enterprise, cheerfulness. tendency of mind to magnify advantages and to overlook or underrate difficulties. *Abuses*: a visionary, chimerical, castle-building disposition, &c.

17. *Marvellousness*.—Faith, belief in special Divine Providence and reliance upon it for direction, belief in spiritual existences and supernatural manifestations. *Abuses*: belief in ghosts, witchcraft, &c.

18. *Veneration*.—Worship of God, adoration of a Supreme Being, a disposition to observe religious rights and ceremonies, respect for religion and things sacred, regard for antiquity and deference to superiors. *Abuses*: idolatry, superstition, respect for unworthy objects, &c.

19. *Benevolence*.—Kindness, sympathy for persons in distress, delight in seeing and a desire to make sentient beings happy, willing to make personal sacrifices to secure this end; generosity, benignity, humanity. *Abuses*: giving alms to the vicious and undeserving; so great tenderness of feeling as to be overcome by the sight of suffering, &c.

SEMI-INTELLECTUAL SENTIMENTS.

20. *Constructiveness*.—Mechanical skill, dexterity in using tools, ability to make, manufacture, build, contrive, and construct; skill in repairing articles, slight of hand in turning off all kinds of manual labor. *Abuses*: waste of time and money in trying experiments, getting out useless patents, trying to invent perpetual motion, &c.

21. *Ideality*.—Good taste, refinement of feeling and manners, delicacy, sense of propriety, fancy, love of polite literature, belles-letters, and a chaste and elegant style; that faculty which perceives and admires the beautiful, the rich, the exquisite, the sentimental, the perfect, and the fine arts generally, which gives impassioned ecstasy and rapture of feeling, elegance and beauty of style, and inspiration to poetry and oratory; softens down the rougher features of man's nature, and creates a desire for improvement and perfection. *Abuses*: ideal reveries, sickly sentimentalism, extravagant love of romance, poetry, the theatre, &c.; that sickly delicacy which is disgusted with the world as it is, and soars to dwell constantly in an ideal world.

22. *Imitation*.—Power of imitating and copying, of doing what one sees done; mimicry, &c. *Abuses*: mimicry, copying the faults of others, servile imitation, following patterns to the exclusion of originality, and at the expense of independence, &c.

23. *Mirthfulness*.—Wit, perception of the absurd and ludicrous, disposition and ability to joke, make fun, ridicule; humor, pleasantry, factiousness, intuitive perception of, and disposition to laugh at that which is improper, ill timed, out of place, unbecoming, &c. *Abuses*: levity, making sport of serious things, ridiculing truth, laughing at the infirmities of the unfortunate, &c.

INTELLECTUAL FACULTIES.—PERCEPTIVE FACULTIES.

24. *Individuality*.—Observation of things as independent existences, curiosity to see and examine objects; disposition to regard physical things in their individual isolated capacity.

25. *Form*.—Cognizance and recollection of the shape, superficies, configuration, and appearance of objects; observation and recollection of facts, of the expression of countenances, family resemblances, &c.; good eyesight.

26. *Size*.—Cognizance and recollection of magnitude, bulk, proportion, &c.; judgment of the weight of bodies, or their gravity, by observing their size.

27. *Weight*.—Intuitive perception and application of the principles of gravity, ability to balance one's self, to preserve the centre of gravity, and to judge of the weight of bodies by lifting them, ability to ride a fractious horse, to carry a steady hand, to throw a ball, stone, or arrow straight, &c.

28. *Color*.—Perception of colors—of their various shades, hues, tints, &c.; delight and satisfaction in contemplating their diversified and harmonious applications.

29. *Order*.—System, physical arrangement, having a place for every thing and every thing in its place.

30. *Calculation*.—Intuitive perception of the relations of numbers and figures, ability to reckon figures and cast accounts in the head, numerical computation, having primary reference to the four fundamental rules of arithmetic as well as to what is called the rule of three.

31. *Locality*.—Cognizance and recollection of the relative positions of objects, fondness of geography, love of travelling, recollection of the looks of places, roads, natural scenery, &c.

32. *Eventuality*.—Observation and recollection of action, phenomena, occurrences, what has taken place, and circumstantial and historical facts; desire to witness and institute experiments; thirst for information, and the news of the day, desire to hear and relate anecdotes, and find out what is, and know what has been, and see what will be.

33. *Time*.—Cognizance and recollection of the time when, of duration, of the lapse of time, the succession of events, of dates, keeping the beat in music and dancing, &c.

34. *Tune*.—Tone, disposition to sing, the musical faculty, sense of melody and musical harmony, ability to learn tunes by note, and to detect agreement or discord by the ear.

35. *Language*.—Power to communicate one's ideas by means of written and spoken language; memory of words; copia verborum; volubility; versatility of expression, ability to learn spoken languages and to use such words as precisely express one's meaning.

REASONING FACULTIES.

36. *Causality*.—Power of perceiving and applying the principles of causation, ability to plan, contrive, invent, adapt means to ends, take the advantage of circumstances, &c.; to create resources; to apply power most advantageously; to discover first principles, and trace out the connexions and relations existing between causes and effects, to reason by drawing conclusions from given premises, to predict the result of given measures, disposition to investigate and to seek the why and wherefore of subjects, a leading element of common sense—the therefore and wherefore faculty.

37. *Comparison*.—Power of induction and generalization, of classifying phenomena, and perceiving and applying the principle of analogy, ability to discover the unknown from its resemblance to that which is known, and also, error from its incongruity with truth, or from its opposition to facts, critical acumen, power of illustrating and explaining one's meaning, of referring to parallel cases, and of using comparisons, similes, figures of speech, &c.

DENTISTRY.

BY ARCHIBALD MCILROY, PRACTICAL DENTIST.

The science of dentistry presents a subject of much interest to every person ; for a set of beautiful and sound teeth is not only ornamental, but is really indispensable as a means for the proper mastication of our food and the distinct articulation of our words. The remarks which follow are in the form of familiar advice to the general reader, that he may be able to adopt such a course of conduct as shall most effectually preserve, in a sound and healthy condition, his own teeth, as well as the teeth of his children. To secure the teeth against the attack of disease, the remote as well as the immediate causes of their decay must be carefully guarded against. The chief cause of the decay of the teeth is the corrosive action of the food and other substances which come in contact with their enamel and producing its destruction from neglect of cleanliness or from irregularity of form ; for when the teeth are kept clean and stand regular they are seldom if ever known to decay, except from inward causes ; the bone of the tooth, however, sometimes becomes inflamed and carious from remote or constitutional causes, where the enamel is yet unbroken. At the same time we think internal cares of the teeth may be as generally prevented as a fever, or any other of the indirect causes which tend to inflame the bone or interrupt its nutrition. A healthy diet and protecting the teeth from the exposure of the extremes of heat and cold, especially in taking drinks, will have a great influence in wholly preventing internal cares.

The prevention of decayed teeth, in the first place, devolves upon the parent and physician. This arrangement is as proper as convenient ; for the daily practitioner in medicine is the fittest person to manage those disorders of the bowels and head that so often accompany the irritation of teething. And as the only local treatment which is then necessary, requires no other instrument than the lancet to cut the inflamed gums down to the teeth, the physician is supplied with all that may relieve the suffering child, in first difficult dentition. But after the first teeth have appeared, and in the management of the second set, the mother has it in her own power to save her child a world of future pain and expense. She should carefully observe the appearance and progress of each temporary tooth. The first teeth generally show themselves in the following order. They come in opposite pairs. Between five and eight months, the four central front teeth. Between seven and ten months the four adjoining front teeth. Between the twelfth and sixteenth the four first double teeth. Between the fourteenth and twentieth the four eye teeth ; and between the eighteenth and thirty-sixth months the four second double teeth. If the mother notice any scurf or other matter collecting upon the smooth enamel, let her remove it. Where it will not yield to the soft brush and water, rub with the end of a splinter of soft pine wood, dipped in tooth powder if necessary. The whole mouth should be daily cleansed by washing. A white silk thread frequently drawn between and around the teeth, will keep their sides clean. And this cleansing process ought to be

faithfully performed by the mother or nurse until it becomes an agreeable habit with the child. By this simple means, all trouble from the first set of teeth will generally be prevented.

If, however, from neglect or other causes, decay should attack any of these teeth, the diseased part can and ought immediately to be removed, and its progress arrested by keeping the place polished as mentioned before. The extirpation of this decay often gives no pain whatever. It may sometimes be necessary even to extract a decayed temporary tooth, when it is very painful or threatens injury to a permanent tooth coming forward by its side; or where the temporary tooth is so slowly absorbed away at its root as to hinder the protrusion of the permanent one beneath. The momentary pain of this operation will not deter the benevolent mother from attending to it in proper season. At the same time let her be cautious of having these teeth extracted too early. Where none of the evils just mentioned exist, it is better to leave their removal to nature, even if they are somewhat decayed.

When the child is exchanging his first temporary set of twenty, for a second permanent set of thirty-two teeth, we should remember that it is of the first importance to their health and beauty, that the latter should have room to stand in regular, arch-like order. Sometimes from contraction or want of the natural expansion in the width of the jaws, there is not sufficient space for this increased number and size of the permanent teeth. In such cases, space and regularity ought to be ensured by the early removal of the second small double tooth from each side of the jaws. At this early age it will be an easy matter to all parties; for these may be said to have but one fang, which is then slightly held in its socket. If any of the larger double teeth be more decayed, it may be advisable to remove them, and let the others remain. At all events, it is indispensable to the preservation and appearance of the permanent set, that they are not crowded or uneven, and serve as so many corners for the detention of decaying food. When extra or supernumerary teeth appear, the same course is to be adopted. And these simple duties discharged, the parent may leave the child to preserve his teeth to the end of life, with the consciousness that he has saved him more agony, deformity, and mortification, than he could have accomplished at so little expense in any other part of his education.

The observance of the preventive means just pointed out for the child, in removing the particles of food and decay, will answer at a more advanced age. In addition to a quill tooth-pick, however, a tongue scraper will often be necessary for the removal of foul mucus which collects on the tongue, and if allowed to remain will injure the teeth. This mucous secretion ought to be scraped off at least every morning, when it is more observable than during the day. The first depositions of tartar ought also to be brushed away at the same time. This substance is almost wholly a deposit from the saliva (or spittle) which is not entirely a watery fluid, but is partly composed of an earthy and animal matter: it is more liable to collect in the vicinity of the salivary glands which open into the mouth beneath the tongue (behind the lower front teeth) and in the cheeks, opposite to the second small teeth in the upper jaw. The watery portion of the saliva being carried off by swallowing, absorption, and by the evaporation in breathing, this earthy residue is left in the mouth; and when allowed to remain there, forms unseemly an injurious accumulation on the teeth, which cannot then be displaced without dental instruments. Some constitutions will require a tooth-powder for the perfect cleansing of the mouth. The following ingredients for a powder may be obtained for a mere trifle, with or without the addition of an aromatic to render them more agreeable.

Prepared chalk, four ounces; pumice stone, finely powdered, one ounce; orris root, one ounce; powdered myrrh, half an ounce; armenian bole, half an ounce.

Another.—Orris root, one ounce; prepared chalk, one ounce; yellow Peruvian bark, two drachms; myrrh two drachms; rose pink, one ounce.

Another.—Peruvian bark, three ounces; armenian bole; one ounce; prepared chalk, half an ounce; oil of bergamont, twenty drops.

A compliance with the preventive course we have here suggested, will generally ensure to all those who enjoy ordinary health a sound condition of their teeth and gums.

To Preserve Decayed Teeth.—If the decay be thoroughly cut out of a tooth, and the cavity thus formed be filled up with pure gold, to exclude food, air, and moisture, that decay is permanently arrested. In filling teeth with cement, every thing seems to depend on its preparation, and that of the cavity where it is to be placed.

If carelessly or erroneously prepared, a cement stopping will be of no utility. The substance will soon wear away, and admit saliva and other corrosive agents to the bone of the tooth. Gold filings, to be serviceable must be pressed very firmly into a cavity smaller externally than inside, and from which every particle of decayed bone has been extirpated. Pure soft gold will be used by every dentist who can get it for his own as well as for his patient's sake. That property of gold which enables it to resist the action of air and moisture, without undergoing change, must always give it the precedence, so long as metals are used for filling teeth. In some cases tin is to be preferred. If properly introduced tin fillings last a long time; and they can be replaced when worn away.

Decaying teeth may thus often be preserved in an advanced stage of disease. But it is in the early stage of decay that the preservation of a tooth is certain and least painful.

There have been instances of teeth being extracted and then replaced immediately after the removal of an abscess, which is eventually gathered upon the fangs in external tooth-ache. But without the process of extraction, we know of no remedy for the aching which arises from suppuration of the periosteum which covers and attaches the fang of a tooth. In the earliest stage, inflammation in the socket of a tooth may sometimes be dispersed by applying leeches to the gum, or by cooling lotions, as vinegar, to evaporate the heat, which (with pain, redness and swelling) is the symptom of inflammation. But when the disease has progressed beyond its first stage, these remedies will only retard its termination by increasing their suppuration, which is then inevitable, and which should rather be hastened by fomentation with warm water, and a linseed poultice applied to the cheek. Yet in this disease, the easiest, the speediest, and the only permanent cure is extraction—the pain of the latter operation being greatly lessened by the introduction of forceps in place of the turnkey.

In order to extract a tooth, the gums and ligaments that bind it to the jaw must be well separated to prevent fracture of the jaw, and in order that the tooth may come away easy. The gum lancet must be carried as close as possible to the tooth.

It requires much care on the part of the operator to have the instrument that is to be used well adjusted, for much depends on that. If it is a turnkey to be used, see that the hook is of the right size. Have the claw of the hook crowded down as close to the jaw as possible. The hook must not hit the top of the tooth: see that the fulcrum lays against the jaw and not against the tooth. All being right, then turn slowly, but firmly.

If the forceps are chosen, care must be taken that the tooth is not racked too much, for if it is, it will have a tendency to split the jaw, or break the tooth. The forceps is the best instrument in the majority of cases, if prop-

erly used. The straight ones are the best for the front teeth ; but the curved ones must be used for the others.

Lost Teeth can be Replaced.—The essential agents of mastication are the muscles that move the jaws, the tongue, the cheeks, and the lips ; the jaw-bones and the teeth serve only as simple instruments.

It is often essential to health, articulation, and appearance, that the natural teeth, when lost, should be replaced. When the teeth are too far decayed to admit of preservation by filling, if their fangs only are healthy in the sockets, the dilapidated crowns can be easily and instantly snapped off, and artificial teeth grafted into them with a pivot, perfectly to imitate nature, and perform with comfort all the offices of natural teeth. But if the fangs be decayed away much below the gums, or if they have caused gum-boils, it is usually better to extract them, and after the gums have thoroughly healed up, mount the artificial teeth upon a gold plate, which shall fit accurately all the indented surface of the gums and that portion of the mouth immediately behind them. This gold plate, to which the teeth are fastened by soldering, is retained in its position in the mouth by different means. Sometimes the little canal which runs up the middle of a healthy fang is enlarged by the dentist (as in grafting) to receive a strong golden wire, which, being soldered to the plate, keeps the case firm in its position. And this, together with the adhesion by moisture between the surfaces of the plate and the mouth, is often all the attachment necessary. Sometimes clasps are fastened to the sides of the plate, and embrace the natural teeth next to the artificial set. Both these modes of fastening are occasionally used together in the same plate. Where all the natural teeth are lost, the plates are kept in by means of elastic spiral springs—one end of the spring being attached to the lower and its other end to the upper plate, on either side of the mouth, between the cheeks and the teeth. The ends of the spring being thus fastened at distances less than the whole length of the springs, the twisted wires of which they are formed exert a constant and sufficient pressure by their elasticity between the plates. Thus there are three modes of confining artificial teeth—by the pivot, the clasp, and the spring. Lost teeth can be replaced and retained in the mouth by either of these modes, with elegance, comfort, and usefulness. But the restorative process is one which requires much patience and accuracy. There are numerous instances where persons have submitted to a great deal of pain and expense, without deriving any benefit in the end ; nay, clasps have often been so badly fitted, as to destroy the teeth to which they were attached, by friction and unequal pressure. Nor is the beauty and accuracy of an artificial case all that is desirable : its strength, too, is a requisite of the first importance. How much trouble and mortification is often caused by teeth coming off from the plate, can be known only by those who have had the experience. This may sometimes be impossible to foresee ; for an artificial tooth that has passed through the trials of rivetting and soldering, may afterward give way from an original defect in the insertion of its rivet by the manufacturer of the tooth. But generally it is owing to the tooth not being shaped by the dentist so that it may rest upon the plate ; or in the want of sufficient solder about the rivets and at the bottom of the little plate that lines the back of each tooth, and which is thus fastened to the plate forming the base of the whole set. Or it may be caused by an unnatural action of the upper and lower teeth, when brought together as in chewing.

In order to have work done with neatness, durability, and comfort, always select a scientific and practical dentist, and never tamper with those who are unacquainted with this important subject.

MESMERISM, OR ANIMAL MAGNETISM.

This subject, after a quiet rest for about half a century, has been revived within a few years past, and is now creating considerable excitement in the community. Men and women have exhibited themselves for the purpose of illustrating this singular phenomenon; but with all their practical knowledge they have never explained the principles of its operation. I shall only give in this chapter the manipulations, &c., used by magnetisers in order to throw their subject into what is called a magnetic or mesmeric sleep, and likewise some operations to which I have been a witness; the rules laid down are those in general practice, and are in accordance with what I have read on the subject.

As there are many believers in animal magnetism whose claim to the title of men of science is not entirely usurped, I have been induced to give it a small space in this work, stating the facts as I have seen them, and then leave the reader to make such experiments as he may choose, and see the results.

To put a person in a magnetic or mesmeric sleep, the operator must place the balls of his thumbs firmly against those of the person he intends to magnetize; to do this conveniently they must sit *vis-a-vis*, and after getting the balls of the thumb in firm contact, the magnetiser and the magnetised must look earnestly at each other, and the magnetiser must will either to himself or express aloud, that the magnetised go to sleep. Deluze says that the magnetiser must have his mind constantly on the person he is magnetising, at the same time will him to sleep; others, again, take hold of the thumb with one hand, and place the other on the head of the subject, which connexion must be kept up until there is an equal warmth between the two, which takes from five to ten minutes, then withdraw the hands, shake them slightly, raise them to the head, and smooth down each side for a minute; then draw the ends of the fingers down the arms, the body, and part of the lower extremities; (it is not necessary that the person should be touched during this operation); the operation, if it can be performed at all on the individual at one sitting, will be consummated in from one to twenty minutes; after taking hold of the thumbs it is necessary for some to be operated on a number of times before they can be put to sleep, while others will fall off in a very few minutes. After commencing the first trial, all the passes must be made from the head downwards; if the subject is to be operated on by passes, the easiest way is for the operator to stand in front, and slowly pass the ends of the fingers down the face, body, and extremities, being at the same time careful to turn the palms of the hands outwards; then, by a sweeping motion, raise the hands again to the head, and repeat till the experiment is complete; if the hands of the magnetiser were raised in the same line that they descend, they would undo all that had been done before; the passes are intended to distribute the effect over the whole system. The first symptom of sleep is a drowsy, sleepy look, the eyes become fixed in their sockets, with the lids open, and having a peculiar stare, with a slight writhing in the lids; sometimes there is a slight convulsive motion in the

body, and sometimes a difficulty in breathing. Those who have been once put to sleep are afterwards very easily affected.

Deluze says again that the magnetizer's mind must be concentrated on the magnetized, and all things that the magnetizer wishes done he must will his subject to do; for instance, if you are putting a person to sleep, you must will that they go to sleep, after which they can be willed to do any thing else that is wanted.

To take them out of this magnetic sleep, the magnetizer must reverse the passes, making them from below upwards; do this a number of times and they will soon wake up; or if the magnetizer wills them to wake up at any given time, they will do it. Some magnetizers have the power of throwing some individuals into a sleep, by looking at them, and willing them so to do.

If you have managed to get a person to sleep by any of the means here laid down, you may then commence any other experiments. It may be as well to state here, that there are long directions given by some how to manipulate for all manner of diseases, but as I have less faith in the healing virtues of the science (if such it be), than in the facts here stated, I shall omit all that relates thereto. Although some magnetizers have taken so much trouble to put the healing properties of magnetism before the world, I must be allowed to doubt whether any good, not only in this but in any other respects, can arise from its practice, unless it be in its operations on the mind.

The first experiment to which I was a witness, was to me both novel and curious. The operator, with whom I was acquainted, put a young man to sleep in the way first related. He then asked a number of questions, the answers to which were in general correct, while a few were the reverse of what they should have been. This magnetizer would put one hand on the shoulder of his subject, and with the ends of the fingers of the other hand would brush down the arm, which would become apparently paralyzed, and could not be moved; on taking hold of his hand, my fingers were gripped so tight as to be uncomfortable and not easily extricated; at the same time there was no apparent feeling in the arm or hand of the magnetized.

As it respects clairvoyance, or the power the magnetizer has over the magnetized, I have but little to say. There are some things done that appear to exhibit this singular phenomenon, and leaving the impression on the mind of the spectator that the magnetizer had complete control over both the mind and body of the magnetized, as they will describe things that it is impossible for them to see with their natural eye. On the occasion of a public lecture in this city, I was selected as one of a committee appointed by the audience to see that all things were fairly done. The subject was a young lady, who, after the magnetizer had got her into what he called the magnetic sleep, would describe and tell the names of things that she could not see, being well blindfolded through nearly all the experiments; by handing the magnetizer any name written on paper, he would ask her to spell it, which she would do correctly, although held behind her. I gave the magnetizer a small case of lancets, in such a manner that no one could have been cognizant of the fact except himself and me; he only asked, "What do I hold in my hand;" this was all that was spoken; she immediately replied, "two lancets." A number of other experiments were tried with like results.

If animal magnetism is true, it certainly proves phrenology to be based on anatomical and physiological facts; for if a magnetizer places his finger on any one of the organs of the person magnetized, that organ becomes greatly excited. If, for instance, it be the organ of combativeness, the individual talks of fighting, doubles his fists, and strikes; then if the organ of reverence is touched, the mind is immediately drawn from fighting, and the conversation takes a serious turn; if the organ of music is exerted in con-

nection with reverence, he will commence singing some devotional strain, and in this way all the organs of the head may be affected separately or combined.

As regards independent clairvoyance, or the power of sending the mind of the magnetized to places that neither they nor the magnetizer know any thing about, such as describing the inhabitants of the moon, &c., is almost too much of the marvellous to be of any service to the cause even if true; For the magnetized to describe things and places that the magnetizer knows, is full as far as my credulity can be allowed to me at present. That a person can see and know more about the disease of another, because he is in the magnetic sleep, that he has the power to look with his mind's eye (his natural eye being closed), inside of an individual, and see the disease, examine the obstruction, and describe the affected part, is in my opinion, an idea, to say the least of it, that cannot be borne out by facts.

If there is any thing in animal magnetism, its cause should be first explained before it can hope to stand on a sure foundation, and its mode of action, if true, will, in my opinion, when discovered, be found to depend upon the disturbance of the vital powers, to understand which, I will refer the reader to the chapter on the nervous system. Therefore, in my opinion, it will be found that it is not magnetism, for it does not obey the laws of magnetism, but might be more properly called vital action.

The time must come when the whole subject will be based on the principle of vitality, and its mode of action, properly understood and accounted for, or it will live and die in the hands of a few speculative charlatans.

I shall now leave the subject, remarking, however, that at some future time I may be induced to examine the matter more fully than space would allow me to do for this work. The reader may try such experiments as he pleases, and make up his own opinion as to the truth or falsity of the science.

DICTIONARY.

- Amenorrhœa, obstruction of the menses.
 Abdomen, belly.
 Aorta, the great artery.
 Adipose, fat.
 Anastomosis, communication of vessels.
 Aponeurosis, tendinous expansion.
 Atlas, the first vertebra of the neck.
 Anodynes, medicines that ease pain and procure sleep.
 Antiseptics, medicines possessing the power of overcoming putrefaction of animal matter.
 Antispasmodics, medicines that allay spasms or cramps.
 Abscess, a collection of matter.
 Astringents, medicines which condense the fibres and consolidate relaxed parts.
 Agglutinants, adhesive substances.
 Anthelmintic, having the power of destroying worms.
 Anasarcous, dropsical.
 Antiphlogistic, to reduce fever and inflammation.
 Aperient, gentle physic.
 Aphthæ, small superficial ulcers in the mouth.
 Arthritis, rheumatic pains of the joints.
 Asphyxia, suspended animation.
 Belladonna, deadly nightshade.
 Blennorrhœa, morbid secretion of mucus, a gleet.
 Bronchiæ, the air tube in the lungs.
 Bronchotomy, an incision into the wind-pipe.
 Canthus, angle of the eye.
 Cardiac, the upper orifice of the stomach.
 Capillaries, the minute vessels forming the termination of the arteries, and commencement of the veins.
 Carotids, arteries of the neck and head.
 Carpus, bones of the wrists.
 Clavicle, the collar bone.
 Cervical Vertebrae, the joints of the spine in the neck.
 Colon, the first large intestine.
 Coma, stupor.
 Congestion, accumulation of blood in a part.
 Constipation, costiveness.
 Cribriform, sieve-like.
 Cathartic, physic.
 Carminatives, medicines which allay pain.
 Carbuncle, a small fleshy excrescence.
 Chalybeates, medicines into which iron enters.
 Cataplasm, a poultice.
 Cephalic, relating to the head.
 Cerebral, relating to the brain.
 Clyster, an injection per rectum.
 Corroborant, strengthening medicine.
 Comatose, morbidly, sleepy.
 Diaphragm, muscular partition between the chest and abdomen.
 Diploe, spongy substance between the two tables of flat bones.
 Duodenum, the first portion of the small intestines.
 Dyspnœa, oppressed breathing.
 Demulcents, soothing mucilaginous fluids.
 Diagnosis, the distinguishing marks of particular diseases.
 Diuresis, difficulty and pain in passing urine.
 Diaphoresis, gentle perspiration.
 Diathesis, any particular disposition or habitude of the body.
 Diluents, bland drinks.
 Diabetes, an immoderate flow of urine.
 Diaphoretics, medicines which produce perspiration.
 Diuretics, medicines which increase the flow of urine.
 Detergents, cleansing medicines.
 Discutients, applications which dissolve or repel tumors.

Deobstruents, laxatives.

Epidermis, the outer skin.

Emetic, a medicine that causes vomiting.

Erosion, eating into.

Emollients, applications that soften and relax the fibres.

Escharotic, caustic.

Epispastics, blistering applications.

Endemic, a disease peculiar, or especially prevalent in certain localities.

Enema, a clyster or injection.

Engorgement, an accumulation of fluids in a part.

Exfoliate, to scale off.

Expectorants, medicines that promote spitting.

Fascia, a tendinous expansion.

Fauces, the top of the throat.

Foramen, an opening or hole.

Function, the action or office performed by an organ.

Farinaceous, made of meal.

Febrile, feverish.

Febrific, that which causes fevers.

Febrifuge, medicines possessing the power of arresting the progress of fever.

Fœtus, a child in the womb.

Fæces, alvine evacuations.

Ganglion, a knot or enlargement in the course of a nerve or tendon.

Gangrene, mortification.

Gastric, relating to the stomach.

Gestation, pregnancy.

Hernia, a rupture.

Hæmorrhage, bleeding from any part of the body.

Hæmorrhoids, piles.

Hectic, a slow habitual fever, with sweats and emaciation.

Herpetic, having the character of a tetter.

Humoral, relating to the fluids, particularly the blood.

Hydragogue, a purge producing watery stools.

Idiopathic, original affection of a part.

Idiosyncrasy, any peculiar habit.

Ileum, the lower part of the small intestines.

Integuments, the skin.

Icterde, yellow, jaundice-like.

Jejunum, part of the small intestines.

Larynx, the upper portion of the wind-pipe.

Lymphatics, vessels that carry white fluids.

Lateritious, brick-colored.

Leucophlegmatic, a pale, relaxed, debilitated, and torpid state of the body.

Leucorrhœa, the whites.

Liniment, a very thin ointment.

Lithontriptic, a solvent of stone in the urinary passages.

Lochia, the flow of blood, or evacuation from the womb after delivery.

Menorrhagia, flooding.

Metacarpus, that part of the hand between the carpus and fingers.

Metatarsus, that part of the foot between the tarsus and toes.

Mucilaginous, gummy.

Menses, the periodical discharges of blood from the womb.

Narcotics, medicines that blunt the sensibility of the nerves.

Neuralgia, painful affection of the nerves.

Nephritic, affections of the kidneys.

Œdema, dropsical swelling.

Œsophagus, the gullet.

Osteology, the doctrine of the bones.

Ossified, changed into a bony structure.

Olfactory, relating to the sense of smelling.

Opiate, a medicine whose prominent ingredient is opium.

Peritoneum, the lining membrane of the abdomen.

Paralysis, palsy.

Parenchyma, the proper substance of an organ.

Pelvis, a bony cavity shaped like a basin, at the lower extremity of the trunk.

Plethora, fulness of blood.

Plexus, a kind of network of vessels or nerves.

Pylorus, the lower orifice of the stomach.

Pleura, lining membrane of the chest.

Pectoral, relating to the breast.

Perineum, space between the anus and organs of generation.

Placenta, the after-birth.

Pessary, an instrument introduced into the vagina to keep the womb up.

Parturition, expulsion of the fœtus from the womb.

Retina, the expansion of the optic nerve on the inner surface of the eye.

Rectum, the last portion of the large intestines.

Refrigerants, cooling medicines.

Strangulation, obstruction.

Secretion, the separation of a fluid or substance from the blood by the action of an organ.

Serous, watery.

Strumous, scrofulous.	Trachea, the wind-pipe.
Symphysis, a connexion of bones.	Thorax, the chest.
Scirrhous, a hard, degenerated tumefaction of a gland.	Tenesmus, an ineffectual and painful urging to go to stool.
Scrotum, the integuments covering the testicles	Tormina, griping pain.
Styptics, medicines which reduce hæmorrhage.	Tonics, medicines which increase the tone of the muscular fibres.
Seton, an artificial ulcer.	Tubercles, small tumors.
Stomachics, medicines which strengthen the action of the stomach.	Uterus, the womb.
Sudorifics, medicines producing perspiration.	Ureters, the tubes which convey the urine from the kidneys to the bladder.
Sialagogues, medicines which excite the flow of saliva.	Urether, the passage through which the urine passes from the bladder.
Sedatives, medicines diminishing muscular action.	Vertebræ, the bones of the spine.
Tumor, a morbid swelling.	Vagina, the passage to the womb.
	Vermifuge, worm destroyer.
	Vesication, blistering.

GENERAL INDEX.

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